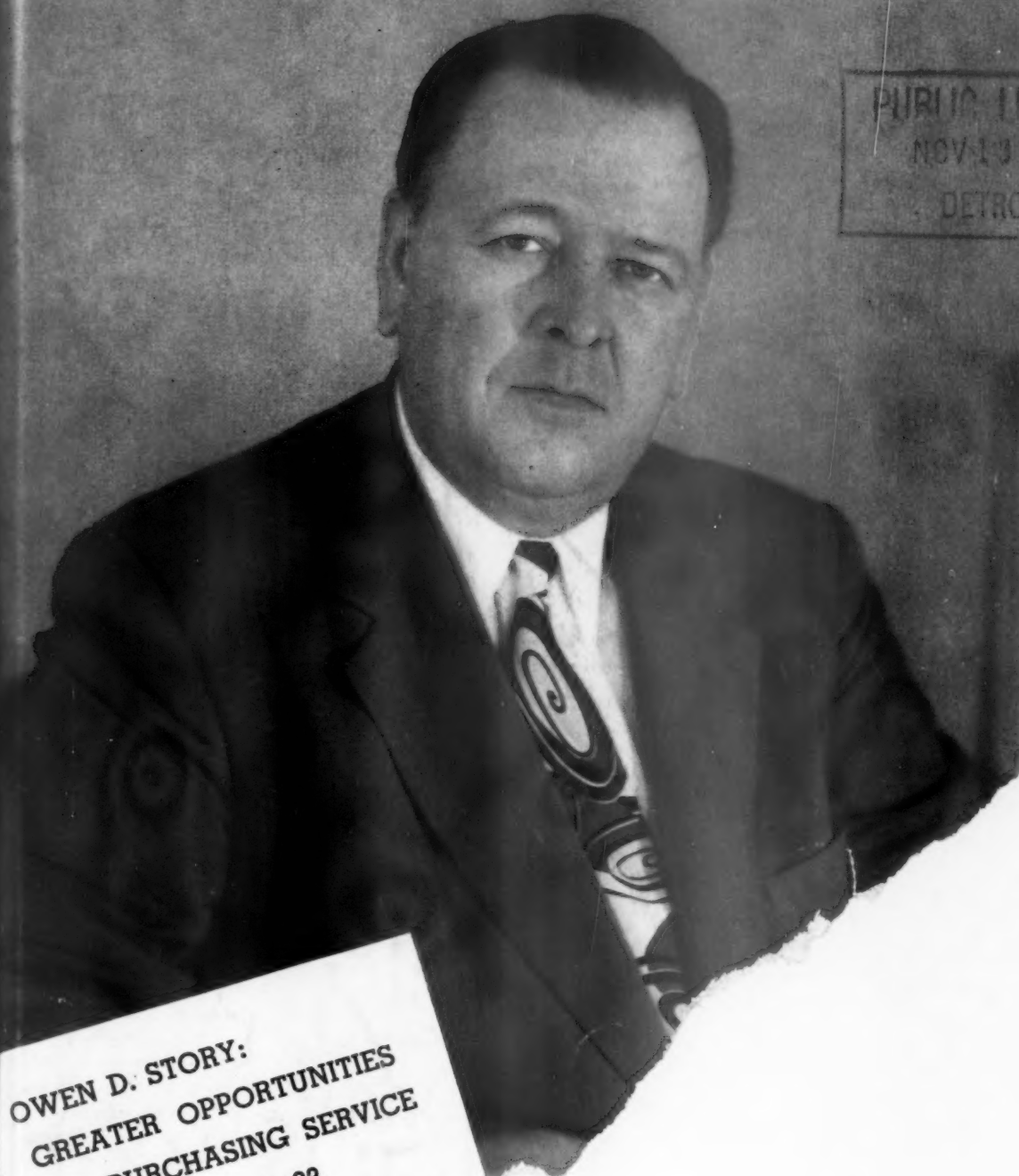


TECHNOLOGY DEPT.

PURCHASING

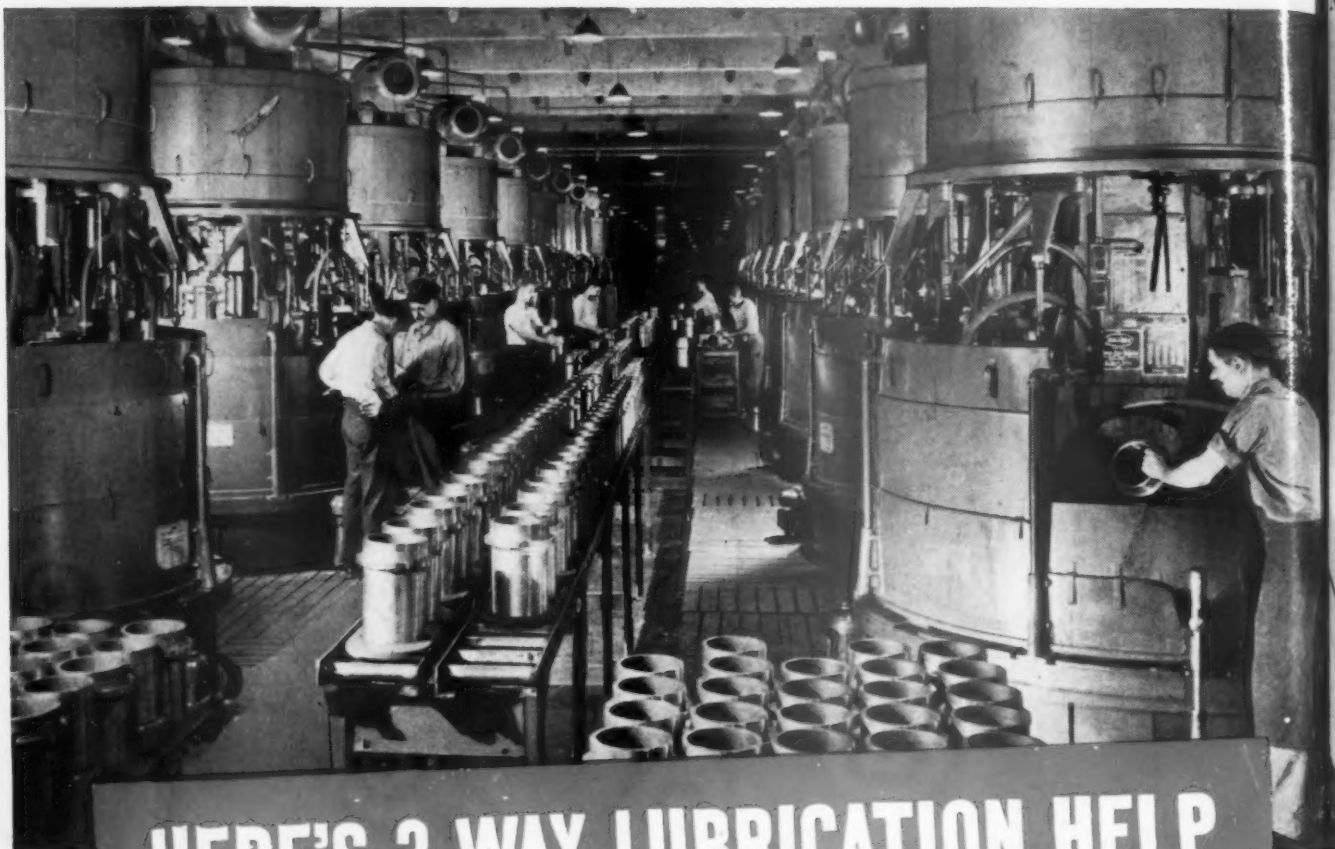
November, 1945



**OWEN D. STORY:
GREATER OPPORTUNITIES
FOR PURCHASING SERVICE**

See page 83

Table of Contents



HERE'S 3-WAY LUBRICATION HELP

plants with production quotas to meet

vital to
the
d

see that you use the *right* amount
of the *right* lubricant in the *right*
place at the *right* time.

3. Nation-wide facilities to assure prompt delivery and service wherever you are located.

effectiveness has won first
Texaco in many important
find out how Texaco
production efficiency

arest of more
ing plants
Texas
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RECONVERSION RUSTPROOFING

4 Points to Remember

1. Ordnance Specification P.S. 300 contains official instructions for complete processing of Government-owned production equipment.
2. These instructions require that only rustproofing materials meeting Government specifications be used.
3. Texaco rustproofing products meet Ordnance specifications for application on Government-owned equipment.
4. For full information, see your Texaco representative or write to us.

Part of Century's
Complete Line of
Air Conditioning
Motors

BUILD MORE CUSTOMER GOODWILL

with CENTURY'S COMPLETE LINE of Air Conditioning Motors

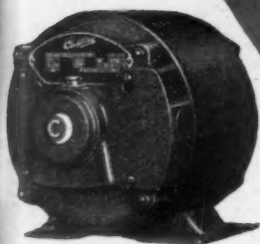
The complete line of Century Motors includes a wide range of types and sizes to meet the requirements of every air conditioning need. That gives you one source for all your motors — makes your buying job easier.

These motors provide your customers with air conditioning comfort — and create more good will for you — because they operate smoothly and quietly. Many features such as rigid construction, mechanical and electrical balance, contribute to the better performance of Century Motors.

Get the complete story on all the advantages of Century Motors — call in a Century engineer. His experience may prove valuable to you.

CENTURY ELECTRIC CO.

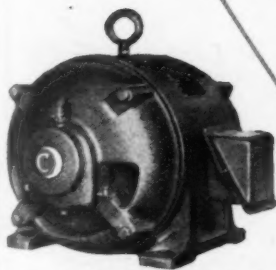
1806 Pine Street, St. Louis 3, Missouri



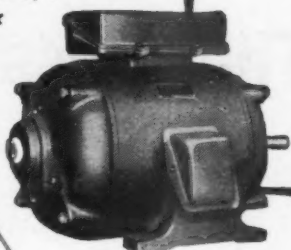
Split Phase Induction Motor
— Built in sizes 1/20 to 1/4
horsepower



Capacitor Single Phase
Induction Motor — Built in
sizes 1/20 to 3/4
horsepower



Squirrel Cage Polyphase Induc-
tion Motor — Built in sizes from
1/8 to 600 horsepower



Capacitor Motor — Built in
sizes from 1 to 20 horsepower



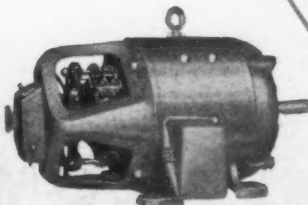
Slip Ring Motor—Built in sizes
from 1 to 200 horsepower



Repulsion Start Induction Motor
—Built in sizes from 1/2 to 3/4
horsepower



Direct Current Motor—Built in
sizes 1/20 to 3/4 horsepower



Direct Current Motor—Built in
sizes from 1 to 300 horsepower



Repulsion Start Induction Motor —
Built in sizes from 1 to 20 horsepower



Offices and Stock
Points in Principal
Cities



• On the third draw, cylinders are formed to 9 1/8" diameter by 14 1/2" deep.

• Each cylinder is finished with a bead having two degree angles.



Cylinders . . . Deep Drawn With Uniform Wall Thickness

Here is an achievement in deep drawing—steel cylinders, 9 1/8" in diameter by 14 1/2" deep, formed without localized stretching or drawing down of the metal.

The success of this deep drawing job, for which the specifications are unusually severe, results from the skill and ingenuity of the Guyer Metal Products Corporation, Chicago, and the fine and uniform quality of Inland Deep Drawing Cold Rolled Sheets.

The operations start with 20-gage, 24 1/2-in. diameter blanks. Final dimensions are attained on the third draw, the cylinders being

straight from top to bottom and with uniform thickness of metal throughout. Then follows another unusual operation. The trimmed edge is turned back to form a bead with two 20 deg. angles.

Thousands of these cylinders have been made of Inland Cold Rolled Sheets, and breakage has been held to the minimum. When you have a deep drawing or severe forming problem, call for an Inland engineer. He will work with you in determining the steel best suited to your product and manufacturing methods.

Principal Products: Bars • Floor Plate • Piling • Plates • Rails • Reinforcing Bars • Sheets • Strip • Structurals • Tin Plate • Track Accessories

INLAND STEEL COMPANY

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Sales Offices: Cincinnati • Detroit • Indianapolis • Kansas City • Milwaukee • New York • St. Louis • St. Paul

KIMPAK FLOAT PACKAGING



Protects against shipping damages

... provides a jewel-box setting!

Plan now to make your postwar package as modern as your postwar product. And that's easy when you use KIMPAK* Creped Wadding. For KIMPAK dresses your package as it protects your product. It complements the beauty of your product—provides a jewel-box setting that increases eye-appeal and buy-appeal.

So soft, so clean, so resilient KIMPAK guards against mars or scratches—dam-

age or breakage. Flexible and easy to use, KIMPAK saves time and work in the shipping room. Often cuts freight costs by reducing cubage.

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As a cushioning material for interior packing, as a filter medium for liquids and air... for wiping and polishing... as a carrier for plastics... for general padding purposes, including furniture and automobile upholstery... as a filler for seaming cord and tubular gaskets.

KIMBERLY-CLARK CORPORATION
Creped Wadding Division, Neenah, Wis.

Send copy of FREE KIMPAK BOOK on postwar packaging methods. P-1145

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Our Product is



"The mark on Finer Gears"



THINGS HAVE CHANGED SINCE ARCHIMEDES DAY

As far back as 250 B.C., Archimedes recognized the capacity of gears to speed the world's work, lighten man's burdens and overcome man's "puniness." But he little dreamed the vital part they were to play through the centuries. The gear of Archimedes' day was a log with hardwood pegs inserted for teeth—crude, but workable. Gear design, construction and production have since come a long way. In the last decade, our engineers and craftsmen have given a new meaning to accuracy and soundness in gear making.

Every Illinois Gear must come up to a "Five Star" standard. ★Material is carefully double-checked—you get exactly what you order. ★Cutting is done by highly skilled craftsmen. ★Required accuracy is inbuilt. ★The gear is double-inspected after completion. ★Delivery is as promised.

Many equipment builders have found it most economical to avail themselves of our sincere and conscientious service. Catalog 39 shows our facilities, typical Illinois gears, and gives helpful data for gear users.

ILLINOIS GEAR & MACHINE CO.

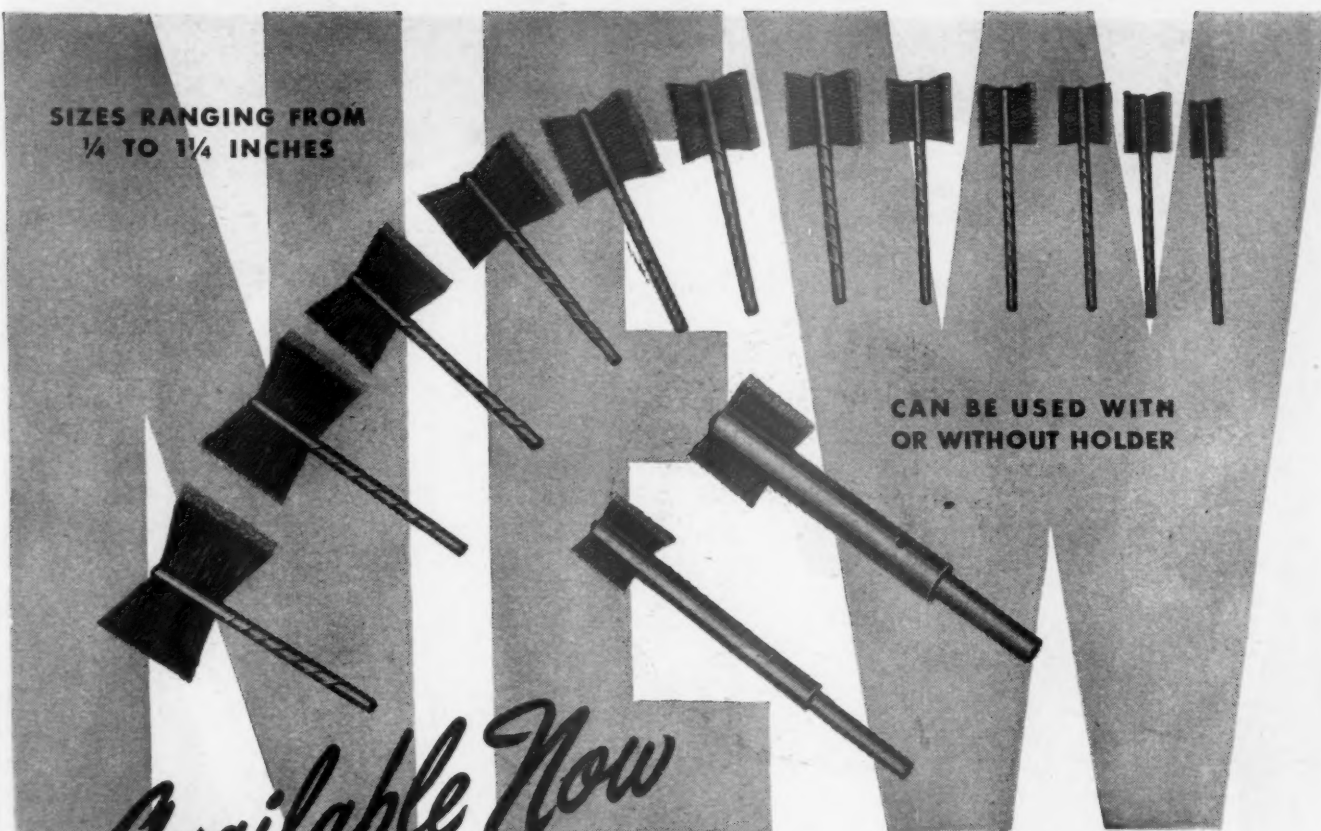
Chicago (35), Ill.



ILLINOIS GEAR & MACHINE COMPANY



A modern high speed
bevel gear generator



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Osborn's new miracle brush...THE "SITUFT"...
used for thousands of small, hard-to-get-at,
formerly impossible jobs...COSTS LESS THAN 20c

For deburring... scale removal... thread cleaning...
 removing rust, corrosion and foreign matter, etc., from
 hard-to-reach places. Can be used on any high speed
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THE SITUFT was developed by Osborn in the
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 miracles of production. Tested by 36 manufacturers
 in unrelated industries... the "Situft" showed
 production increases as high as 600%, with costs
 lowered proportionately. It's 1000 to 1 it can do
 a similar job on your product. Order your special
 tool crib assortment NOW!

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INDUSTRY ACCEPTS THE NEW

MACKLIN COMPANY
Manufacturers of GRINDING WHEELS
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Write for illustrated booklet
T-45 which tells the story of
the development of these
new, improved bonds and also
gives complete specifications
and recommendations for all
types of tool room grinding.

WALWORTH LUBRICATED PLUG VALVES



offer these advantages

- ... Direct port opening
- ... Quarter turn opens or closes valve
- ... Dead tight shut-off
- ... Freedom from attack by fluids being handled
- ... Pressure sealed
- ... Made in a complete line. Sizes from ½" to 24" for pressures from 125 to 5,000 psi., and for vacuum requirements

THESE are just a few of the reasons why Walworth Lubricated Plug Valves give "top" performance on many difficult services.

All Walworth Lubricated Plug Valves employ special insoluble lubricants which protect the plug and body against contact with the line fluid, thus combatting erosion and corrosion.

The lapped surfaces of the valve are "pressure sealed" when the valve is in either the open or closed position. By turning the lubricant screw, lubricant is forced under high pressure through a grooving system that completely encircles the parts as well as the top and bottom of the plug.

The lubricant seals the valve against leakage, and reduces friction between plug and body. This permits easy, quick, full-opening, or tight shut-off with only a quarter turn of the plug.

Fig. 1700 (illustrated) is a Steeliron valve, wrench operated, designed for a working pres-

sure of 200 pounds WOG (water, oil, or gas). Valves are available in either screwed or flange types. Screwed type have API line pipe thread lengths. Flanged type are faced and drilled to American Standard for 125-pound cast iron flanges unless otherwise specified.

For further information about Fig. 1700, as well as the complete line of Walworth Lubricated Plug Valves write for Catalog No. 44L.



SEND FOR THIS FREE CATALOG

This new Walworth Lubricated Plug Valve Catalog No. 44L is just off the press. It gives prices, sizes, dimensions, and other pertinent data on this comprehensive line. A request on your company's letterhead will bring you a free copy of this informative catalog.



14 AWARDS
TO 4 PLANTS

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valves and fittings

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"Know-How" Information

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FOR YOUR PLANT

1. PULLERS, SERVICE TOOLS, ETC.

Catalog 45 describes the OTC line of Pullers and push-pullers with their attachments and adaptors, and varied service tools for automotive, industrial, tractor and aircraft maintenance. It covers tool sets for aviation, general service, industrial maintenance, Diesel service and several well known makes of tractors. Part of the catalog is devoted to sledging wrenches, open end wrenches and socket wrenches, and accessories. Owatonna Tool Co.

2. ALUMINUM BRONZE GEARS

"Ampco Metal In Gears" is four page bulletin describing the use of aluminum bronze in gear applications. Table shows preferred grades of Ampco Metal for various types of service. Ampco Metal, Inc.

3. SILICONE VARNISH

Bulletin describes DC 996 Silicone varnish, a new heat stable, waterproof varnish for impregnating electrical equipment. It cures at 300 deg. F. Numerous advantages are cited such as greater protection against failure due to sustained overloads; greatly increased life of equipment; protection against excessive moisture; increased power output per unit of weight, etc. Equipment can be baked fully assembled without damaging the commutators or the slip rings. Dow Corning Corp.

4. SILICONES

You should have this new Dow-Corning Catalog. It lists all of the Dow Corning silicone products now available. These are produced in many forms including fluids, greases and compounds, resins and varnishes, and Silastic—the Dow Corning silicone rubber. In all of their forms the silicones extend permissible op-

erating temperatures far above and below those at which comparable organic materials are serviceable. Many industrial uses for the materials are indicated. Dow Corning Corp.

5. WIRE & CABLE CALCULATOR

Pocket-size rapid calculator to determine the recommended loading of standard gauge primary wire has been developed by the Electric Auto-Lite Company. It allows for the instantaneous determination of the gauge of wire recommended for headlights, tail, marker and rear light circuits, as well as correct generator and power circuit wiring. Trade numbers of the various wire gauges are also shown.

6. CASTING RESIN

You will find this new Durez booklet worth study. It describes Durez Casting resin for dies, jigs, fixtures, foundry patterns, models and masking shields for plating and painting. It is well illustrated to show actual applications. Durez Plastics & Chemicals, Inc.

7. WELDING ACCESSORIES

Up-to-date catalog (No. 40) of Airco gas welding and cutting supplies and accessories has been published by Air Reduction. It contains illustrations, descriptions and engineering data. Equipment covered includes welding rods, brazing and welding flux, hose, brazing alloys, goggles, gloves, rods and plates, hardfacing rods, etc.

8. NAME PLATES

Four-page bulletin in color shows varied types of etched metal, lithographed and plastic name plates, identification plates and trade mark plates, dials, instrument panels, etc., made by the Etching Company of America.

9. AIR MOTORS AND PUMPS

Bulletin describes Gast Rotary air motors and pumps for vacuum or compression. Air motor is built in two sizes, Model 2 and Model 4 and delivers from 1/20 to 1 hp. Pumps are said to offer special advantages for vacuum and for low pressure operations. Gast Manufacturing Corp.

10. PLASTICS

Folder describes laminated and other types of plastics materials fabricated by McInerney Plastics Co., fabrication and processing activities, and parts and products made. Included are charts showing approximate properties of plastic materials available through the company, and of especial value, properties of various laminated plastic materials available, indicating Navy, Nema and Army types.

11. PNEUMATIC TOOLS

Circular illustrates and describes varied types of pneumatic tools for industrial production manufactured by the Keller Tool Co. Line includes grinders, hammers, nut runners, screw drivers, ratchet wrenches, etc.

12. RECORD CARDS

Catalog describes Handifax visible record cards, for Purchase Cost, Sales, Stock and other records. Cards are assembled on card-sheet backs, by simple joining method, and provide half-inch visible margin. May be filed on edge in correspondence folders or maintained in file units. Cards are readily removed or added to card-sheet back. May be assembled in ring-book form, or panel books for pocket or desk. Ross-Gould Co.

13. ALUMINUM FORGING STOCK

Bulletin 23-A describes Reynolds aluminum forging stock. It is available in various alloys in rod, bar and forging shapes. Two classes are produced, Class I for general forging use, and Class II (cold finished) for applications requiring close volume control. Reynolds Metals Co.

14. GRINDING WHEELS

Catalog 645 describes Electro High Speed cut-off wheels. Full color and authoritative text presents newest grinding wheels and techniques developed during past five years. Purchasing agents are especially invited to get a copy of this book. Electro-Refractories & Alloys Corp.

15. MATERIALS HANDLING

Special issue of "Handling Materials" describes materials handling in 20-acre factory building of Cleveland Pneumatic Aerol, Inc., which was especially built to make shock-absorbing landing gears for military aircraft. Equipment, machinery layout, aisle

Continued on page 12

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FOUR PAGES OF "KNOW HOW"—10-12-14-16

Case history No. 187

Ebaloy is a tough alloy steel. "LALF" stands for Long Angle Lathe File. The two came to grips in a valve-manufacturing plant. In perhaps ninety cases out of a hundred this file will do a perfect job of lathe filing. But in this particular instance it didn't . . . it simply would not polish out Ebaloy valve stems smoothly.

A Nicholson service engineer had the solution. One way to do the job right, he explained, was to use the Long Angle Lathe File to remove the tool marks and then polish with a Mill Smooth File. A still better way, said he, was to use a Mill Second Cut* for the whole operation . . . because it could do a faster cutting job and at the same time produce a perfectly satisfactory finish.

THE CASE OF EBALOY VS. "LALF"



NEW METALS, new products, new production methods are constantly creating new filing problems. It has long been a Nicholson policy to serve industry not only by making *Files for every purpose*, but to assist in selecting *The right file for the job*.

Another service that Nicholson feels it owes its customers is to contribute toward the proper

use and care of files. This guidance is offered in the interest of more efficient workmanship, greater production and lower tool costs. One of the most helpful aids in the use of files is—

• "FILE PHILOSOPHY"—the interesting, profusely illustrated Nicholson 48-page handbook on kinds, use and care of files. It is **FREE** to industrial managements in quantities for judicious distribution around the shop, tool room and among production and purchasing heads. . . . And order Nicholson files from your mill-supply house.

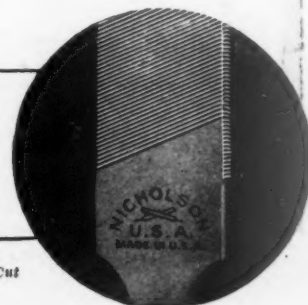
NICHOLSON FILE CO. • 28 ACORN STREET, PROVIDENCE 1, RHODE ISLAND
(In Canada, Port Hope, Ont.)



MADE IN U. S. A.

NICHOLSON FILES

FOR EVERY PURPOSE



*Nicholson Mill Second Cut

Know-How Information, Continued

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spacing and other factors are described in detail. Towmotor Corp.

☐ **16. TOOL STEEL TUBING** — Bulletin describes Bisco Steel Tubing which may have several uses in your plant. It is especially directed to the Purchasing Agent. It tells how the tubing provides short cuts and savings in the manufacture of tools and dies. It includes photographs of many applications, and includes how-to-order information. Bissett Steel Co.

☐ **17. ELECTRICAL INSULATING MATERIALS** — Folder offered by Continental Diamond Fibre Co. presents electrical and mechanical properties of C-D fibre insulating materials. You may want copy for your design and production department, as well as for your own uses. How many? Continental Diamond Fibre Co.

☐ **18. ELECTRICAL ACCESSORIES** — Safety switches, service control, multi-breakers and electrical specialties as well as a selected list of the more widely used motor control items, are described in new Cutler-Hammer, Inc., "Merchandising Catalog." Many of the items are of new design. Bring your file up-to-date.

☐ **19. FIRE HOSE** — New broadside on municipal fire hose titled "Hot Facts for Firemen" has been released by B. F. Goodrich Co. Page gives 12 tips that will lengthen hose life. Industrial Products Divn.

☐ **20. METAL DISINTEGRATOR** — "Metal Disintegration by the Thomas Process" explains the adaptation of a principle of electronics to the disintegration of ferrous metals. It illustrates examples of disintegration in addition to removal of broken and embedded taps and small tools from all types of materials. The Clinton Machine Co.

☐ **21. JET CONDENSERS** — Bulletin W204-B10 describes Low Level Jet Condensers mounted on horizontal single wet vacuum for steam engines, small turbine or process applications. Worthington Pump & Machinery Corp.

☐ **22. DUCT BOOSTERS and Stack Fans** — Bulletin 102 describes International duct boosters and stack booster fans. Capacities and other data are given. International Engineering, Inc.

☐ **23. POWER-TOOLS, ROTARY FILES** — New 62-page catalog shows Jarvis Power-Tools—flexible shaft machines of the bench type, floor type and suspension type and Jarvis tools. Latter include polishing heads, profile grinding wheels, standard grinding wheels, etc., all illustrated in actual size. Also, Jarvis rotary files, tapping devices, and Jarvis quick-change chucks and collets. The Charles L. Jarvis Co. Middletown, Conn.

☐ **24. PUMPS for Petroleum Industry** — Folder PS1 describes rotary pumps for the Petroleum Industry. Blackmer Pump Co.

☐ **25. ABRASIVE SEGMENTS** — Abrasive Segments Used in Chucks is title of booklet just released by Norton Co. Various chuck assemblies are illustrated, accompanied by specification details.

☐ **26. MANGANESE STEEL** — Non-Magnetic applications. Bulletin No. 1144 NM issued by American Manganese Steel Divn., American Brake Shoe Co. describes the non-magnetic applications for Amsco Manganese steel, tells about the development of manganese steel, non-magnetic alloys and illustrates various applications.

☐ **27. IDLER BACKSTANDS, Grinding & Polishing** — New booklet gives the "plus" factors in belt grinding and finishing with idler backstands. Behr-Manning.

☐ **28. INDUSTRIAL HOSE** — Catalog section issued by B. F. Goodrich Co. contains data on sizes, plies, weight per hundred feet, diameters and working pressures of water hose for industrial plants.

☐ **29. NEW CONCEPTS OF COLOR** — That is the title of bulletin available from the McDougall Butler Co. on the efficiency, safety, health and comfort factors of colors on walls, equipment, etc. Text deals with color utilization in office, factory, etc.

☐ **30. COLLOIDAL BLACK DISPERSIONS** — Bulletin 118-A, "Aqueous Colloidal Black Dispersions" (revision) is available from Binney & Smith Co. It includes four new products; General characteristics, charts properties of individual grades, and outlines applications in various industries.

☐ **31. FLOATING DISC CLUTCHES** — Installation and Data Book No. 45 deals with Maxitorq floating disc clutches, which are available in 3 basic types — single type clutch, double type and cut-off coupling type. It contains list of "Do's and Don't's" for clutch users, and also tells about new automatic overload release safety clutch. The Carlyle Johnson Machine Co.

☐ **32. UNDERWATER TORCH** — Circular 610 describes underwater arc-oxygen cutting torch and kit. Chicago Tool & Engineering Co.

☐ **33. PRINTING FROM PLASTICS** — Folder available from Printing Materials Division of Bakelite Corp., tells about fine printing from plastic printing plates made from Bakelite and Vynilite plastics. Development includes halftones, line plates, typematter, or composite forms. Samples of work include color plates of fine quality and register. You may want copy for your advertising and sales department, as well as for your own information.

☐ **34. FUZON-O** — This is a flexible vinyl resin coating made by the Stanley Chemical Co. Manufacturer states it is particularly useful for making water and moisture resistant clothing, fabric shoe materials, fabrics or glass cloth coating cable or wire sleeving, treating belting and other fabrics, laminating purposes, and for upholstery materials.

☐ **35. PORTABLE HYDRAULIC PRESS** — Rodgers portable hydraulic press is described in new catalog just issued by Rodgers Hydraulic, Inc. Illustrations show versatility of press and its adaptability to most heavy duty pulling or pressing problems. Shop presses, hooks and lugs for pulling, jacks, power hydraulic pump units, and pipe straightening equipment are also described.

☐ **36. CONTAINERS** — New "General Box" issue provides up-to-date details on containers and is packed with colorful illustrations. It gives information on types now being made, and new designs. It also gives details on new containers designed with eye to maximum strength with minimum weight. General Box. Co.

☐ **37. MAGNESIUM ALLOY CASTINGS** — New 58 page manual describes physical, mechanical and working characteristics of magnesium alloy sand castings. If your company is concerned with weight reduction for tools, parts of machinery and equipment, appliances, automotive parts, and so on, you of course will want a copy of this manual. Magnesium Foundry Divn.

Continued on page 14

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FOUR PAGES OF "KNOW HOW"—10-12-14-16

Walker-Turner MACHINE TOOLS' WIDE SPEED RANGES CUT MACHINING COSTS!

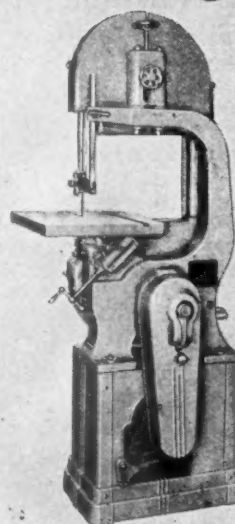
● Using the correct cutting speed for every operation and material pays off in faster machining—fewer damaged tools and blades—cleaner, more accurate production. This all adds up to lower cost per piece!

Exceptionally wide speed ranges with ample adjustments between "high" and "low" enable Walker-Turner Machine Tools to cut costs substantially. The Radial Drill's jack-shaft assembly and the Band Saw's back-gearing and cone-pulley arrangement are examples of this advanced designing. Write today for detailed catalog.

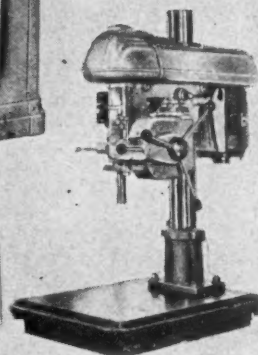
WALKER-TURNER COMPANY, INC.
PLAINFIELD, N. J.



RADIAL DRILL
16 Speeds from
160 to 8300 R.P.M.



BAND SAW
8 Speeds from
61 to 5300 S.F.M.



20" DRILL PRESS
5 Speeds from
260 to 5200 R.P.M.

MORE FOR YOUR MACHINE-DOLLAR
with prices like these!

RADIAL DRILL—\$352.50 less base and motor.

14" BAND SAW—\$127.50 less base and motor.

20" DRILL PRESS—\$255.00 less motor.
(Slightly higher west of Rockies and in Canada).

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turner**
COMPANY, INC.
PLAINFIELD, N. J.
U.S.A.

MACHINE TOOLS

DRILL PRESSES — HAND AND POWER FEED • RADIAL DRILLS
METAL-CUTTING BAND SAWS • POLISHING LATHES • FLEXIBLE SHAFT MACHINES
RADIAL CUT-OFF MACHINES FOR METAL • MOTORS • BELT & DISC SURFACERS

"Know-How" Information, Continued

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38. REFRACTORIES — Bulletin describes Durabilt refractories for industrial furnaces, and suspended type wall arch and roof construction. All tile are intermeshed for air tightness, non-spalling and for strength directly suspended from supporting brackets forming a smooth continuous surface. Casting is removable permitting making of repairs from the outside. Chicago Fire Brick Co.

39. SOUND ON WIRE DICTATING MACHINE — Of course you will be interested in this bulletin. It tells about the new "sound on wire" dictating machines. It is termed the True Electronic Recording. No needles; no cylinders. It is a very interesting development. Standard Business Machines Co.

40. TUBING TOOLS — Handy tube-working tool selector is one of the features of a new folder on tubing tools recently released by The Imperial Brass Mfg. Co. Tools are for use with copper, brass, aluminum, thin-wall and similar tubing. Individual tools and tool kits are described.

41. DIESEL POWER PLANTS — New booklet published by Diesel Engines Manufacturers Assn. covers the use of Diesels in city power plants. It is entitled "Diesel Facts" and illustrates installations, accompanied by data on operations.

42. MARINE BATTERIES — Catalog 500 covers Gould Kathanode Glassklad Batteries for marine service, also, Dreadnaught batteries. Both types are available in a wide range of capacities and physical dimensions to meet the needs of high rates for diesel engine starting, as well as lighting, radio, telephone, etc., aboard all types of craft from fishing boats to luxury liners.

43. INDUSTRIAL TIRES — General industrial pneumatic tires for wide variety of applications are described in six-page bulletin. These include the new Air Corps standard tires with demountable rims and simplified wheel sizes, Jumbo Jr. with separate tubes; and wheelbarrow tires and wheels. General Tire & Rubber Co. Industrial Tire Division.

44. SPEED REDUCERS — Bulletin No. 75 describes Jones worm-helical speed reducers for agitators, mixers and similar equipment. Standard line includes 15 standard ratios ranging from 40 to 1 to 250 to 1 for all common motor speeds and wide range of hp ratings. W. A. Jones Foundry & Machine Co.

45. GEARS — Brochure on gears is available from Fairfield Manufacturing Co. Products include hypoid, helical, herringbone, spur, spiral bevel, straight bevel, worm and zero gears, and complete differentials and various splined shafts.

46. SAMPLE ROLL TAPE — Trial roll of Mystic self-stick cloth tape and printed matter describing this tough, waterproof fungicide treated tape for use where holding, protecting, masking, sealing and repair work may be involved, will be sent to you if you check No. 46. Mystic Adhesive Products.

47. FASTENINGS — Harper non-ferrous and stainless fastenings are covered by new catalog which lists 4360 items that are carried in stock. H. M. Harper Co.

48. PROTECTIVE SHIPPING MATERIALS — Bulletin describes various Witco Protective Materials for protecting domestic and export shipping. These include rust inhibitors, mastic bag sealers, dipping wax, etc. Mastic No. 244 is special bituminous compound that conforms to U. S. Army Spec. AXS-1231 and A-N AC Spec C 94. Witco Chemical Co.

49. FILTER PAPERS — Samples — Filter Paper Co. will be glad to send you working samples of Filco Filter papers. Company makes filter paper, cloth and asbestos pads, filter presses, pumps, storage and mixing tanks and other equipment. Indicate type of filter you want.

50. TUBE FITTINGS — Circular describes Tourek super-tite tube fittings, which maker states are leak-proof and vibration proof. Can be reconnected over and over again without injury to tube fitting. Available in range of sizes to fit tubes with standard flares. J. J. Tourek Mfg. Co.

51. STORAGE BATTERIES — Sealed in glass stationary batteries are the subject of Gould Catalog 1000. Gould Plate batteries, Kathanode batteries, Dreadnaught batteries and accessories are covered. Types are indicated along with technical data, and information on dimensions and weights. Gould Storage Battery Corp.

52. TAPS — Copy of Besly "Handbook for Users of Taps" is yours for checking No. 52. It provides answers to everyday tap problems. Edition is limited. Chas. H. Besly Co.

53. SAFE FLOORS — Booklet describes Inland 4-Way Floor Plate, "the safest and most permanent type of flooring." It is made of rolled carbon steel, and has no dirt catching pockets or corners. Liquids drain freely, making for easy cleaning. Inland Steel Co.

54. CLUTCH HEAD SCREWS — Sample screws and Bit sent if you will check No. 54. Maker states they make for increased production — driving speed, driving ease, and long bit life. May also be used with ordinary screw driver. United Screw & Bolt Corp.

55. WRAPPING & PACKAGING — Samples and full information in regard to Fibreen, a tough, dirt and waterproof paper which provides maximum protection with minimum bulk. Check No. 55. The Sisalkraft Co.

56. WELDING FITTINGS — Bulletin WF 41 describes Midwest welding fittings. Manufacturer says user can depend upon the catalog dimensions and cut his pipe before he receives the fittings. Midwest Piping & Supply Co., Inc.

57. PHOTOCOPYING — Data file on Apeco Photocopy includes 20-page catalog which describes photocopy which copies "anything" up to 18" x 22", and other models for prints of any length up to 42" wide. American Photocopy Eqp't Co.

58. SNAP ON-TOOLS — Full range of Snap-on Torqometers is covered in 1945 catalog of 300 Snap-on tools for production, assembly and maintenance, which afford accurate tensioning from zero to 30 inch pounds up to 2000 pounds. Get a copy so your catalog file on these tools will be up-to-date. Snap-on Tools Corp.

59. ABRASIVE BACKSTAND BELTS — Booklet "Step Up Production" outlines advantages of 3-M Abrasive Bench Backstand Belts for grinding and finishing jobs, especially those curved-surface jobs that can't be done by ordinary methods. Belts offer a smooth-running, fast cutting set-up for grinding and finishing either flat or curved areas. Minnesota Mining & Mfg Co.

60. HYDRAULIC PULLER — Bulletin 44J describes Simplex Jenny Center-Hole Hydraulic Puller with which one man can pull, push or lift as much as ten men working with old methods. Capacities 30, 60, 80 and 100 tons. Templeton, Kenly & Co.

Continued on page 16

PURCHASING

205 EAST 42ND ST., NEW YORK, N. Y.

Please send me the "Know-How" information checked.

38 ☐ 39 ☐ 40 ☐ 41 ☐ 42 ☐ 43 ☐ 44 ☐ 45 ☐ 46 ☐ 47 ☐
48 ☐ 49 ☐ 50 ☐ 51 ☐ 52 ☐ 53 ☐ 54 ☐ 55 ☐ 56 ☐ 57 ☐
58 ☐ 59 ☐ 60 ☐

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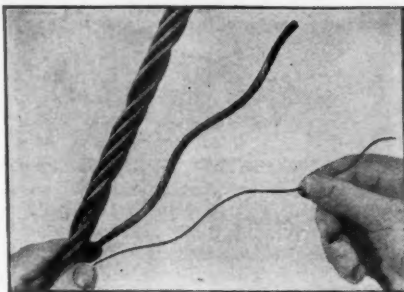
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11/45

FOUR PAGES OF "KNOW HOW"—10-12-14-16

For maximum safety, service, economy



All wires and strands in Macwhyte PREformed are spiral shaped to fit naturally into position. When you select Macwhyte PREformed you get "the correct rope for your equipment," plus a personal interest in helping you get the most out of your rope.



All Macwhyte PREformed is internally lubricated! Macwhyte Wire Rope Lubricant is packed around each wire in all strands. This improves the sliding action of the wires as they move in bending around sheaves and drums. It also protects against inside corrosion.

You make sure of the best when you buy Macwhyte PREformed. It's a rope with less internal fatigue, less friction, better balance and longer life. It's a safer, easier-to-use rope. These extra advantages are acquired through PREforming — every strand is shaped to take its place *naturally* in the rope. Internal stresses are held to a minimum.

The wire that goes into Macwhyte PREformed is processed under constant metallurgical control in Macwhyte's own wire mill. And when this tough, flexible wire is assembled into strands, PREformed and internally lubricated under close supervision of Macwhyte wire rope craftsmen, it just has to be the correct rope for your equipment.

Macwhyte PREformed is especially recommended for your extra-tough jobs, though many wire rope users tell us it pays them to specify this superior rope for all operations. They say its greater life makes it cost less in the long run.

Get this Macwhyte Wire Rope Catalog!

170 pages of useful information. A request on your company letterhead will bring it to you promptly. Ask for Catalog G-15.



MACWHYTE COMPANY

Wire Rope Manufacturers

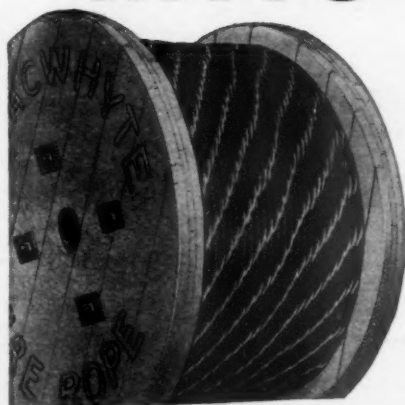
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Mill Depots: New York • Pittsburgh • Chicago • Fort Worth • Portland • Seattle
San Francisco • Distributors throughout the U. S. A.

MACWHYTE PREformed and Internally Lubricated Wire Rope... MONARCH
WHYTE STRAND Wire Rope... MACWHYTE Special Traction Elevator
Rope... MACWHYTE Braided Wire Rope Slings... MACWHYTE Aircraft
Cables and Tie-Rods... MACWHYTE Stainless Steel Wire Rope,
Monel Metal Wire Rope, Galvanized Wire Rope

NO. 697

MACWHYTE



PREformed

INTERNALLY LUBRICATED

WIRE ROPE

"Know-How" Information, Continued

USE COUPON
ON EACH PAGE

61. MACHINE TOOLS, SMALL TOOLS, GAGES — New condensed catalog issued by Pratt & Whitney is excellent presentation of various machine tools — lathes, millers, Keller machines, etc., small tools in the form of taps dies, milling cutters, reamers and miscellaneous tools; and gages of varied types. It is well illustrated.

62. ALL-ELECTRIC TYPEWRITER — You will find bulletin describing and illustrating the Electromatic all electric writing machine with adjusted spacing, of much interest. Work is featured by improved appearance and greater legibility. The Mechanism automatically allows the proper amount of space for each printed character. Electricity does the work and secretaries get out more letters. Electromatic Typewriters Inc.

63. CHEMICAL SPECIALTIES — New catalog shows some of the newer products of Arnold Hoffman & Co. It does not touch on their standard products such as sulfonated oils and tallow. Products detailed include binders, fabric sizing materials, thickeners, bodying and stiffening materials, emulsifiers, detergents, fixation agent, softeners, etc.

64. STAINLESS STRIP STEELS — Catalog describes stainless strip steels of Superior Steel Corp., types available, recommended applications, working, corrosion resistance offered by various types, table of weights, and also table showing approximate physical and mechanical properties of well known metals and alloys. Superior Steel Corp.

65. CORROSION RESISTANT VALVES — Powell Valves for Corrosion Resistance is subject of new booklet issued by the Wm. Powell Co. It describes and illustrates valves that are available in a wide selection of pure metals and special alloys for corrosion service. Valves can be made in materials to control the flow of practically any known corrosion media.

66. POWER TRANSMISSION EQUIPMENT — Medart Power Transmission Equipment is detailed in Catalog No. 66. Index includes wide range of equipment

including plates, bearings, clutches, couplings, pulleys, rope drives, take-ups, V-belt drives, etc.

67. FLAME CUTTING — Victor Publication No. 52 is devoted entirely to hand and machine cutting torches and tips. It includes hand cutting torches, circle attachment, machine cutting torches, underwater cutting torch, attachments and tips. Victor Equipment Co.

68. VISUAL GAGES — Sheffield Visual Gages is the title of new catalog offered by the Sheffield Corp. It shows the various attachments which can be used with the visual gage making possible different applications. Sheffield gage is an indicating comparator with either English or metric scale. Six models are available with magnifications ranging from 500 to 1 to 20,000 to 1.

69. PHENOLIC RESIN GLUES — Phenolic Resin Glue for Plywood is the title of new booklet which gives complete picture of phenolic resin glues for plywood made by Bakelite Corp. It shows where they can be used, and also describes new resorcinol-type cold setting glue which requires contact pressure only.

70. SILICONE RUBBER — This is subject of new bulletin just issued by General Electric Co. It is the newest of the synthetic elastomers and possesses many of the physical properties of both natural and synthetic rubber though entirely different in its chemical make up. It is processed on standard equipment. An outstanding characteristic is retention of flexibility at low temperature. Also, it has outstanding stability when heated in air at high temperatures, retaining rubber-like characteristics after ageing for 3 to 4 hours at 400 deg. F., and 36 to 48 hours at 575 deg. F.

71. STATISTICAL QUALITY CONTROL — "Dimensional Quality Control Primer" is subject of manual just released by Federal Products Corp. It presents the subject in a very understandable way, and is accompanied by sample standardized work and chart sheets used in the procedure. You will find it worth while to get acquainted with this inspection tool.

72. WELDED PRODUCTS — New booklet issued by National Annealing Box Company describes welded pressure vessels and special plate products and company's facilities for making them from open hearth, stainless, alloy and clad steels.

73. SAFETY GUARD for Power Presses — Junkin Safety Guard which is said to eliminate costly press accidents, and to be universally adaptable to a wide variety of presses is described in 12-page bulletin. Junkin Safety Appliance Co.

74. FUEL CONSERVATION — Data folder issued by W. B. Connor Engineering Corp. contains case study of application of Dorex Air Recovery equipment to existing system, and the fuel, energy and equipment savings made possible thereby.

75. CONVEYOR — Circular describes Filco-Easy-Ride conveyor developed for handling boxes, cases and paper cartons. It is described as an efficient portable or permanent system. Supports are adjustable for gravity conveying. Supports can be furnished with ballbearing wheels of hard rubber or steel to facilitate moving conveyor from one department to another. The Filter Paper Co.

76. AIR MOTORS — Bulletin describes Bellows Air Motors for pulling, pushing or lifting operations on various machines, tools and special operations. Standard and special stroke lengths range from 1½" to 18". They operate on any line pressure up to 175 lbs. Model BM5 develops thrust force approximately 4.9 times operating air line pressure, and Model B11 develops thrust force of approximately 10.3 times. Pull force is approximately 8% less.

77. FIRE FIGHTING — 16 page booklet "Sharpshooting at Flames" describes Randolph extinguishers, and tells how to fight fires with fast-action carbon dioxide gas. Randolph Laboratories.

78. PREFABRICATED STEEL BUILDINGS — Bulletin describes Rigidsteel standard building construction. Rigidsteel building is a stiff-jointed structure made up of a system of beams, joined together to form a rigid frame and designed so that all field connections are bolted. Standard cover consists of galvanized steel sheets. Standard bay lengths are 14', 16', 18', 20', 22' and 24'. Building lengths may be any combination thereof. Standard widths are any 2' multiple plus 6", viz: 22'-6"; 34'-6"; 46'-6" and so on. National Machine & Foundry Co.

79. SET-UP BOXES — 15-page folder "Set-up-Boxes", illustrated with photographs and diagrams, the work of highly qualified specialists drawn from all branches of the set-up box industry, is available from the National Paper Box Manufacturers Assn. Buyers of packaging will find it of practical interest.

80. ELECTRONIC RAT TRAPS — Mimeograph describes Rochester Automatic Trap which catches rats and electrocutes them. Traps are rented by Electronic Traps, Inc.

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Please send me the "Know-How" Information checked.

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FOUR PAGES OF "KNOW HOW"—10-12-14-16

Speed RECONVERSION with Time-Saving SKILTOOLS!

These portable electric tools speed every drilling, sawing, sanding and cutting job on wood, metal, masonry products and compositions. They will help you complete your change-over work quicker . . . enable you to swing into full peacetime production sooner.

Every SKILTOOL is light, compact, powerful, easy to handle . . . and there is a complete range of sizes and models, assuring you of the right tool, in the right size, at the right time. Call your distributor today for a demonstration!

SKILSAW—speeds countless cutting jobs in wood or metal...removes worn out flooring . . . builds bins, shelves, partitions faster . . . speeds crating or uncrating of machinery.

SKILDRILL—speeds all drilling in wood or metal on electrical, plumbing and carpenter jobs . . . use later in production drilling . . . 14 models, ¼ to ¾ inch capacity in steel.

SKILSANDER—Belt Type—speeds refinishing of all flat surfaces of wood, metal or compositions . . . reclaims used wood or metal . . . refinishes desks, tables, etc. . . use later for greater efficiency in production.

SKILSANDER—Disc Type—speeds cleaning and refinishing of all concave or convex surfaces of wood or metal . . . ideal for production work, grinding welds or polishing many products.

SKILGRINDER—Spindle Type—speeds grinding of irregularities in metals . . . removes heavy weld beads . . . use later to step up grinding and finishing operations in production.

SKILGRINDER—Bench Type—speeds sharpening of many types of tools . . . twist drills, taps, chisels, cutters, etc. . . place them in convenient spots throughout the plant.

SKILSHEAR—speeds the cutting of hot rolled steel up to 16 ga., and softer materials in proportion . . . ideal for sheet metal fabrication in repair, maintenance or production work.

SKILNIBBLER—speeds cutting without distortion of hot rolled steel or galvanized iron up to 14 ga., softer materials in proportion . . . light, perfectly balanced, easy to handle.

SKILBLOWER—speeds cleaning dust and dirt out of stock bins, shelves, motors, radiators, etc. . . delivers dry air at high velocity under low pressure . . . easily converted into a vacuum cleaner by using suction attachments.

SKILSAW, INC., 5033-43 Elston Avenue, Chicago 30, Illinois
Factory Branches in All Principal Cities

PORTABLE ELECTRIC SKILTOOLS

MADE BY SKILSAW, INC.

SKILSAWS

SKILSANDERS

SKILSHEAR

SKILNIBBLER

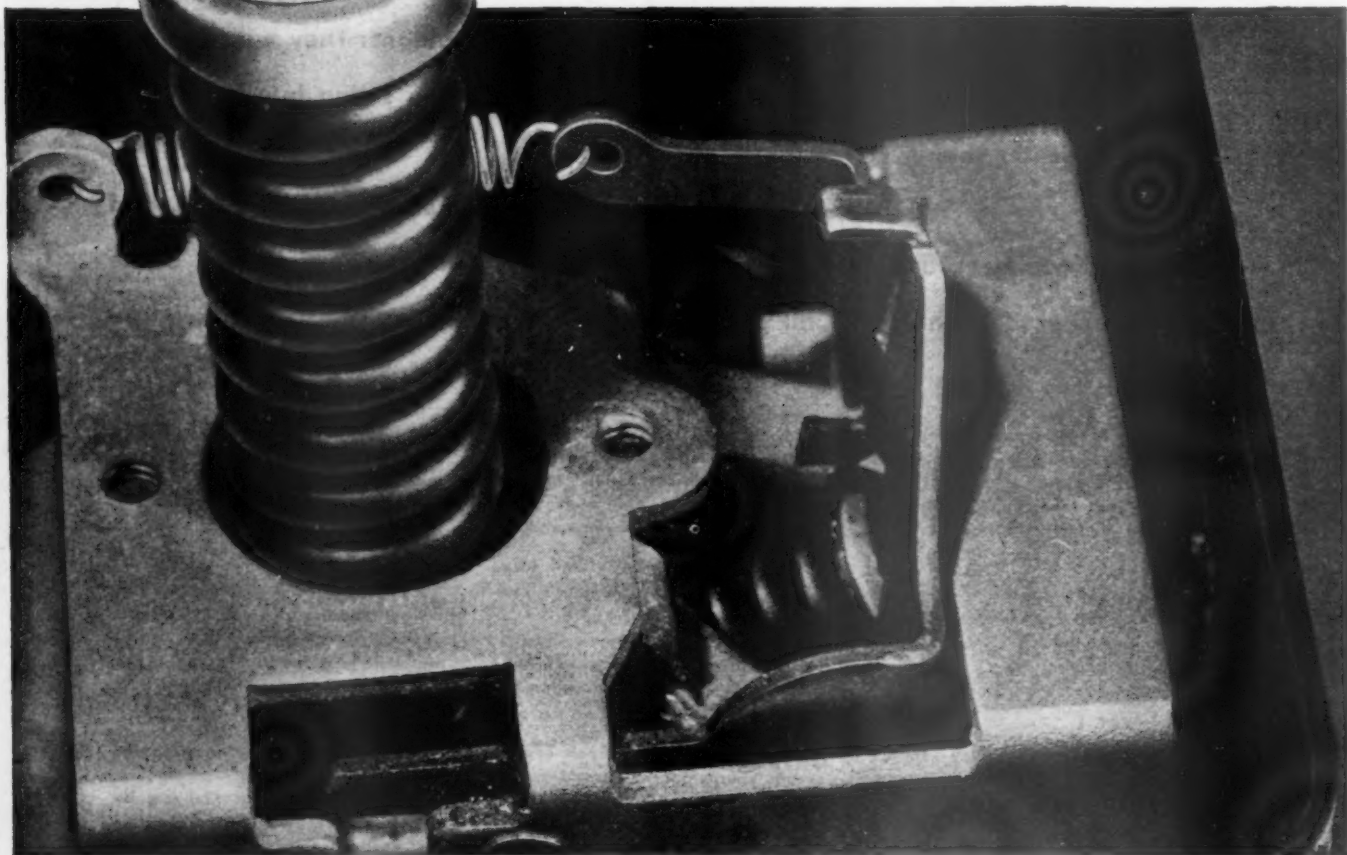
SKILGRINDERS

SKILDRILL



A NUT BELONGS

where you put it!



THE ELASTIC *Self-locking* STOP NUT HOLDS FAST

Like a sentry on post, the red collar nut never wavers in its duty. It stays where it's put.

This is especially important in mechanical assemblies where spring tension or compression devices are designed to hold fine adjustments. At best, the "creeping" of an ordinary nut means continual servicing for readjustments. At worst, it means poor operation or complete breakdown.

But the Elastic Stop Nut, the one with the famous red collar, never backs off, whether it is "seated" against a surface or unseated on a threaded part. Only a deliberate effort with a wrench will remove it, yet

that removal is sure and simple because the famed red collar seals off dirt and corrosion from the bolt.

It is the red collar that overcomes the effects of vibration, shock and impact—the precise forces that make ordinary nuts fail. The collar in the head of the Elastic Stop Nut is tough and strong. It is unthreaded and gauged slightly smaller than the bolt. Bolt threads force their way in, do not cut. The result is a two-sided friction grip that holds firmly. And because the collar is resilient, the Elastic Stop Nut may be used over and over again.

Perhaps you are having difficulty with nut-and-bolt fastenings caused by

loose nuts. Let an Elastic Stop Nut engineer call on you. Just write us.

LOOK FOR THE RED COLLAR THE SYMBOL OF SECURITY



ESNA

TRADE MARK

ELASTIC STOP NUT CORPORATION OF AMERICA

Union, New Jersey

LINK-BELT

Silverstreak

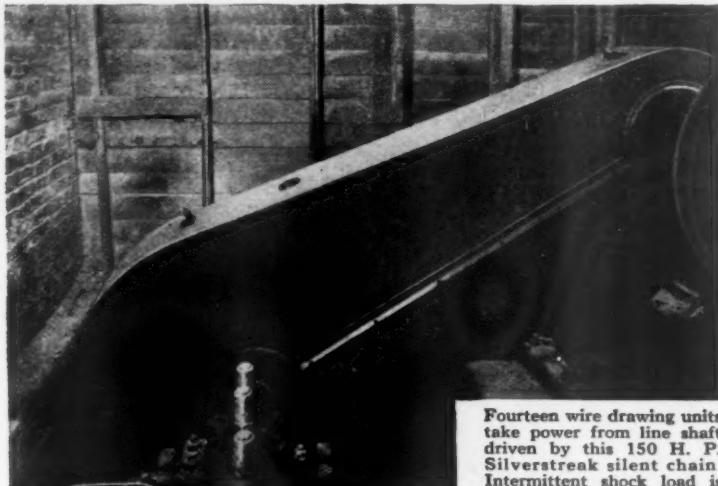
**SILENT CHAIN DRIVES
HELP BOOST PRODUCTION
OF**

Wire Rope!

**EFFICIENCY and RELIABILITY
STRIKINGLY DEMONSTRATED**



Five years ago Link-Belt Silverstreak silent chain replaced another type of drive on this high speed drive and as a result of making this change, the silent chain drive has given uninterrupted trouble-free service. Starting torque reaches 300% normal load.



Fourteen wire drawing units take power from line shaft driven by this 150 H. P. Silverstreak silent chain. Intermittent shock load is characteristic of application. Drive has operated continuously for 21 years, with no upkeep expense.

War at sea and in the air required vast amounts of wire rope, for numerous purposes. As the tempo of the conflict increased, makers of wire rope were called on for "more rope—better rope—more kinds of rope, than had ever been made before!"

In the "E" plant of the Macwhyte Company, energy and ingenuity combined were exerted to meet this call, with noteworthy results. Methods and machines were developed and improved, largely by their own engineering department, which stepped up the volume to meet the Navy's demand for an utterly dependable product.

On every type of machine, throughout the plant, power is delivered by positive, efficient Link-Belt Silverstreak silent chain drives. A few typical applications, with pertinent data, are illustrated. These drives are demonstrating the economy and efficiency inherent in the design and assured by the precision manufacture of Link-Belt Silverstreak silent chain drives.

Engineers—superintendents: send for Data Book 125, packed with helpful facts and application suggestions.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.

10,100

Eliminate Slip

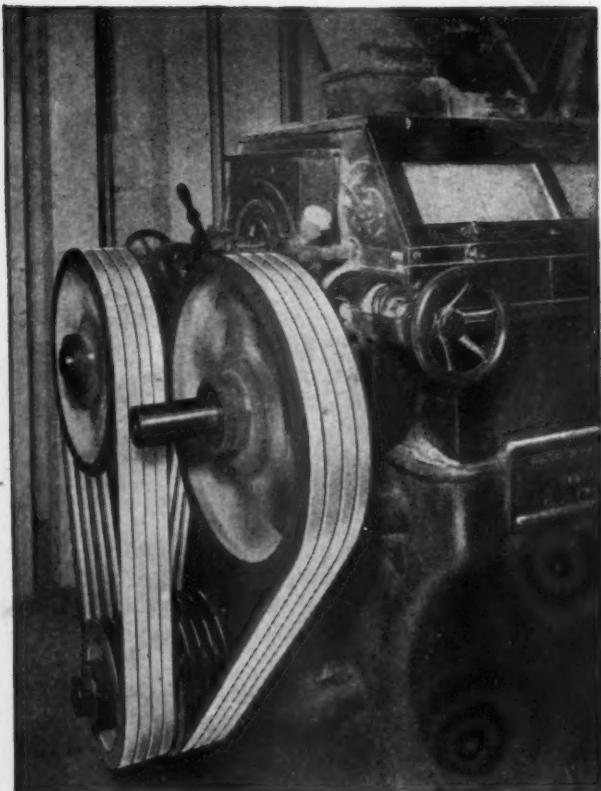
**PUT TEETH
IN YOUR DRIVES**



LINK-BELT
Silverstreak
SILENT CHAIN DRIVE

*The reason
for this fact
is worth knowing*

Your **STANDARD** GATES VULCO ROPES
are **TODAY** out-performing
ANY V-Belts **EVER** Built Before!



All Gates V-Belts
are Built with
The Patented



*Here is
the reason*

● Every improvement developed by Gates for these Army V-belts has also been added, day by day, to the quality of the standard Gates Vulco Ropes which have been delivered to you.

Here is one rare instance in which you have received immediately the full advantage of war-time improvements developed primarily for military use. Ordinarily, you have to wait. But in the case of Gates V-belts, everyone recognized the vital role they played in maintaining the production that proved so essential in winning the war.

That is why Gates has been able to pass on to you, day by day, every V-belt improvement developed for our armed forces during the war — and that is why your Standard Gates Vulco Ropes are today outperforming any V-belts ever built before!



THE MARK OF SPECIALIZED RESEARCH

THE GATES RUBBER COMPANY

Engineering Offices and Jobber Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO 6, ILL., 549 West Washington. NEW YORK CITY 3, 215-219 Fourth Avenue. ATLANTA 3, GA., 521 C. & S. Nat'l Bank Bldg.
LOS ANGELES 21, CAL., 2240 E. Washington Blvd. DENVER 17, COLO., 999 S. Broadway. DETROIT 2, MICH. 223 Boulevard Bldg.
PORTLAND 9, ORE., 333 N.W. 5th Ave. DALLAS 2, TEXAS, 1710 N. Market St. SAN FRANCISCO 3, CAL., 170 Ninth St.

**This kind of
LIGHTING
is costing
you money!**



Glare and insufficient light are costing you money here. Glare helps produce eye strain and fatigue causing errors and lowering employee efficiency. Proper inspection of polished metal surfaces is difficult unless a large area, uniform,

high-illumination low-brightness light source is used. No wonder production lags under unshaded lamps which produce a glaring light with approximately 50% as much illumination as required.

**This kind of
LIGHTING
is money in
your pocket!**



No more squinting or headaches caused by poor lighting. Here is the same job. G-E Fluorescent Lamps give a soft, cool, uniform high-level illumination. Glare is reduced to a minimum and there is plenty of light diffused over a large area to help make this difficult inspection job easier.

There's a G-E Lamp for every lighting need—and G-E engineers to help you use them best. Whatever your lighting problem, let G-E help you with its solution. Consult your G-E Lamp Supplier **TODAY.**

G-E LAMPS

GENERAL  ELECTRIC



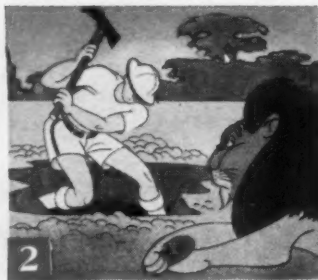
RESEARCH IS ALWAYS AT WORK TO
IMPROVE G-E LAMPS AND MAKE THEM

STAY BRIGHTER LONGER!

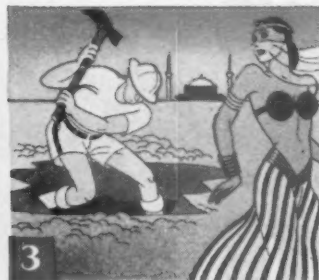
What will they cook up next?



1 You make alloys by "cooking" several metals together.



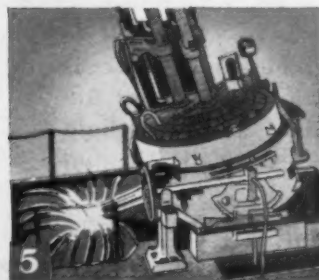
2 For example, you go to Africa and dig up some rare ore.



3 Then, you zip over to Turkey and dig up another kind . . .



4 . . . and push off for India for a third type. Next . . .



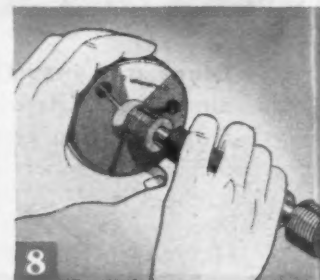
5 . . . you mix 'em exactly right and cook 'em in an electric furnace.



6 What have you got? STELLITE! A wonderful, useful new alloy.



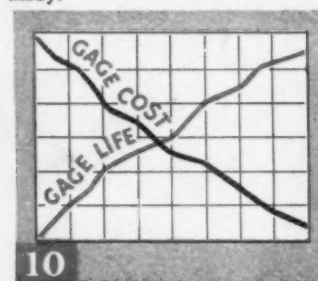
7 N. A. Woodworth and Stellite engineers put their heads together.



8 Result! Long-wearing and corrosion-resistant GAGES.



9 Woodworth Gages of Stellite Cast Alloy outwear steel 25 to 1.



10 They increase gage life many times—reduce gaging costs.



11 And, they won't rust or corrode, in storage or in use.



12 Woodworth Gages made with Stellite set production records!

What Woodworth research means to industry

PIONEERING in the use of splendid new materials like Stellite is almost an everyday occurrence at Woodworth.

Here's why.

Every Woodworth product must conform to this basic research and manufacturing policy . . . *to make only products which will benefit industry through increased production and reduced costs.*

Since Stellite makes certain

Woodworth products more efficient, it is being used. But, if tools and gages made out of *fragments of the moon* were required to speed up production and lower costs, our engineers would strive to find a way to furnish them.

Our always-try-to-make-it-better attitude should be of real help to industries preparing for the coming scramble for post-war markets.

ACCURACY YOU **W** CAN TRUST

WOODWORTH

N. A. WOODWORTH CO., SALES DIVISION, 1300 E. NINE MILE ROAD
DETROIT 20, MICHIGAN

PRECISION GAGES

PRECISION MACHINED PARTS

PRECISION TOOLS

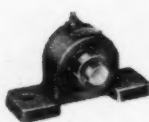
LOCKS TO THE SHAFT

WITH A FINGER TWIST

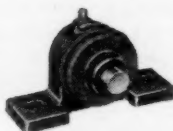
You don't need shaft shoulders, locknuts, adapters, or precise machining to install a Fafnir Transmission Unit on a shaft. For Fafnir alone offers the Wide Inner Ring Ball Bearing construction with exclusive Self-Locking Collar. These bearings are machined to inch instead of metric bore dimensions, for slip fit on stock shafting. And a simple finger-twist of the collar locks the inner ring to the shaft.

Give the shafts in your plant and your product the benefit of frictionless ball bearing support. Specify Fafnir Ball Bearing Units and assure yourself of unbeatable ease of installation and removal. The Fafnir Bearing Co., New Britain, Conn.

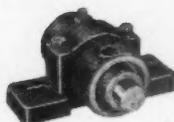
TYPICAL FAFNIR BALL BEARING TRANSMISSION UNITS



Standard Ball
Bearing
Pillow Block



Double Pillow
Block



Heavy Series
Pillow Block with
Extra Seals

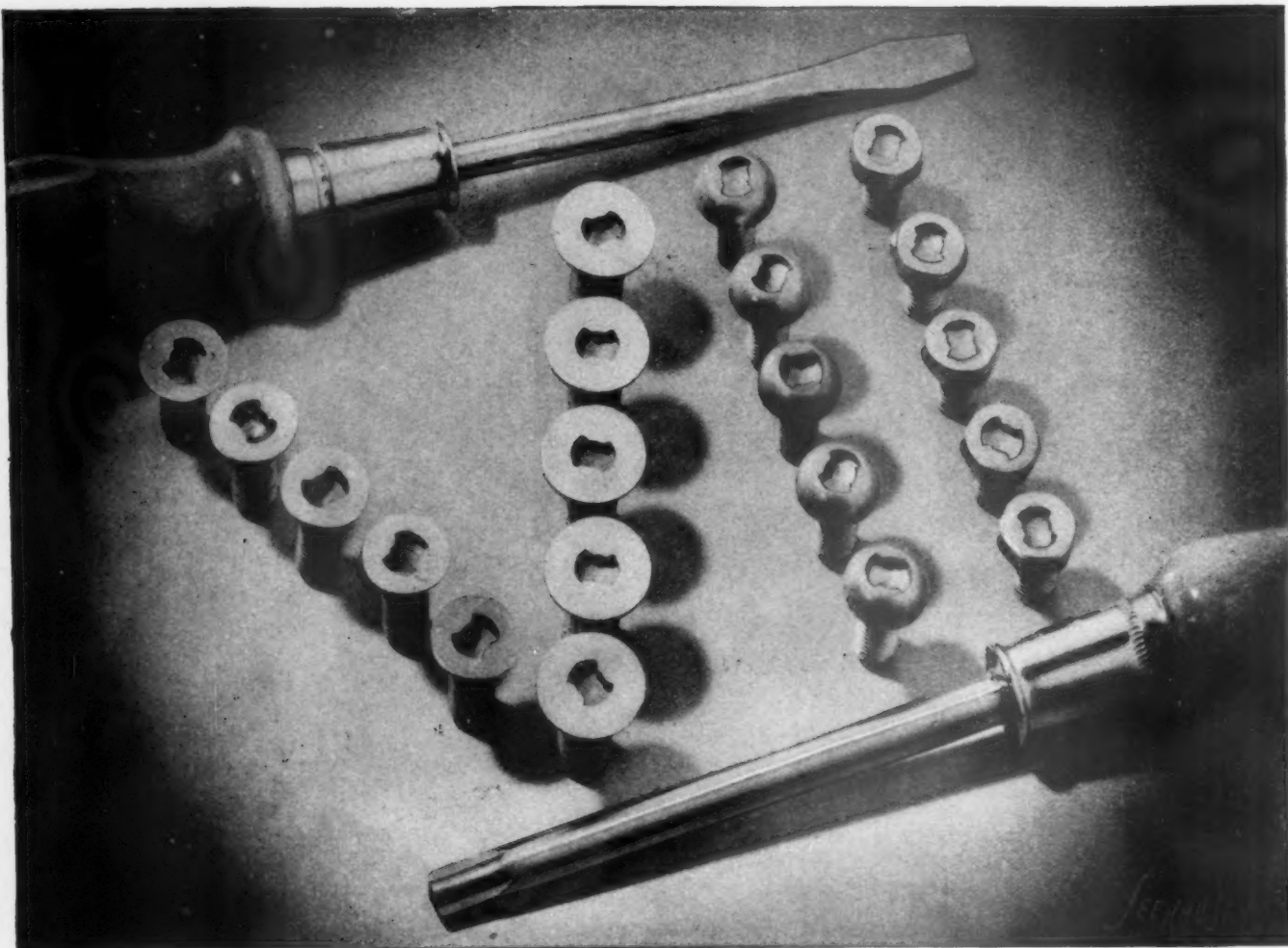


Flange
Cartridge



FAFNIR
BALL BEARINGS

MOST COMPLETE LINE IN AMERICA



Seven Major Features

have established
CLUTCH HEAD as
the most modern

screw on the market . . . for safer, speedier production and lower final cost.

- I** The wide roomy Clutch, an easy-to-hit target, inviting operator confidence and speed.
- II** Center Pivot entry to prevent canting; deep positive engagement for protection against slippage . . . safeguarding manpower and materials.
- III** No end pressure. The straight-walled Clutch matched by straight-sided driver disposes of "ride-out" tendency as set up by "tapered" drive home.
- IV** CLUTCH HEAD's exclusive Lock-On unites screw and bit as a unit . . . substituting easy one-handed reaching for fumbling with mechanical fingers.
- V** The rugged Type "A" Bit delivers a longer uninterrupted spell of service . . . and may be repeatedly reconditioned to original efficiency by a 60-second application of the end surface to a grinding wheel.
- VI** Simplified field service . . . because CLUTCH HEAD is the only modern screw operative with the ordinary type screwdriver, or any flat blade, of proper width.
- VII** Here again the CLUTCH HEAD Lock-On saves the day. With the Type "A" Bit, rusted-in and frozen-in screws may be withdrawn undamaged and held secure against dropping for re-use.

Because CLUTCH HEAD is "The Screw That Sells Itself," we invite you to personally examine and test these features. Your re-



quest will bring you, BY MAIL, a package assortment of CLUTCH HEAD Screws and sample Type "A" Bit; also fully illustrated Brochure.

UNITED SCREW AND BOLT CORPORATION

CHICAGO 8

CLEVELAND 2

NEW YORK 7

In
for m
Now,
moto
main
All
(CSF
prelu
not e
years
many
main
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W
and
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3100
Box

Anoth
— the
"Don"

**now...on a wider
range of motors**

don't lubricate for 5 years or more

up to 15 hp

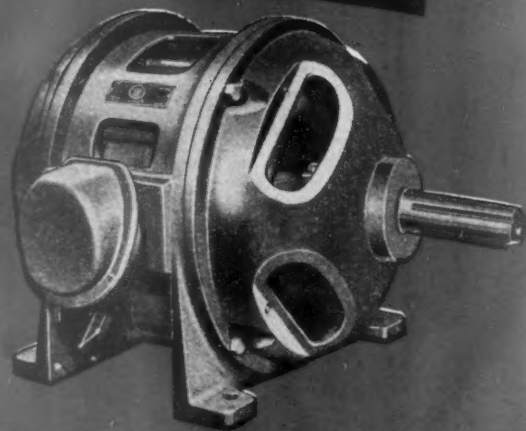
Induction motors—always an easy responsibility for maintenance crews—are now simpler than ever. Now, in sizes up to 15 hp, Westinghouse squirrel-cage motors need no lubrication for 5 years at least and maintenance is practically negligible.

All Westinghouse squirrel-cage ball bearing motors (CSP and CS) up to 15 hp, frames 203 to 326, are prelubricated at the factory and sealed so they need not even be inspected for lubrication until after 5 years of 24-hour-a-day operation. In operations using many motors, this saves a large amount of time for maintenance crews and brings other advantages, as well:

- No overgreasing
- No "skipped" bearings
- No grease contamination
- No grease seepage
- No unreplaced pipe plugs

With all these advantages, you can install motors and work them hard for 5 years or more with no attention. For complete information, write for Bulletin B-3554 and Descriptive Bulletins 3100-CSP and 3100-1 to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

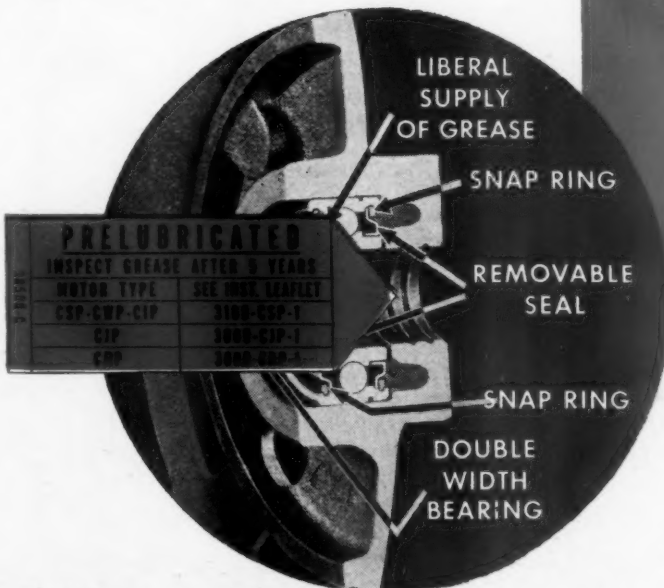
J-21329



Type CS motor has prelubricated sealed ball bearings, frame sizes 254 to 325.



Type CSP motor has prelubricated sealed ball bearings, frame sizes 203 to 225.



Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE



SQUIRREL-CAGE MOTORS

Another Westinghouse motor "First"
—the lubrication label that says,
"Don't lubricate for 5 years or more."

Build the competitive advantages of longer life,
better performance into your products...with

SPERTI HERMETIC SEALS



BUYERS who have waited through the war years will be looking for big improvements in your products. You'll have to meet civilians' expectations...just as you have met military specifications.

You can do it by building longer life, better performance, more trouble-free operation into your products. That calls for Sperti Hermetic Seals, the rugged, dependable, war-proved seals that effectively shut out dust, moisture and deteriorating agents.

Sperti Hermetic Seals are durable, one-piece units, easily soldered-in at less expense. Because of Sperti's advanced manufacturing methods, plus exhaustive tests and inspections, you'll get "true" seals that cut down production delays and costly rejects in the inspection line.

WRITE, TODAY. Get the facts. Find out about the many product applications of Sperti Hermetic Seals and their performance advantages.



Sperti

Incorporated, Dept. P-115, Cincinnati 12, Ohio

RESEARCH • DEVELOPMENT • MANUFACTURING

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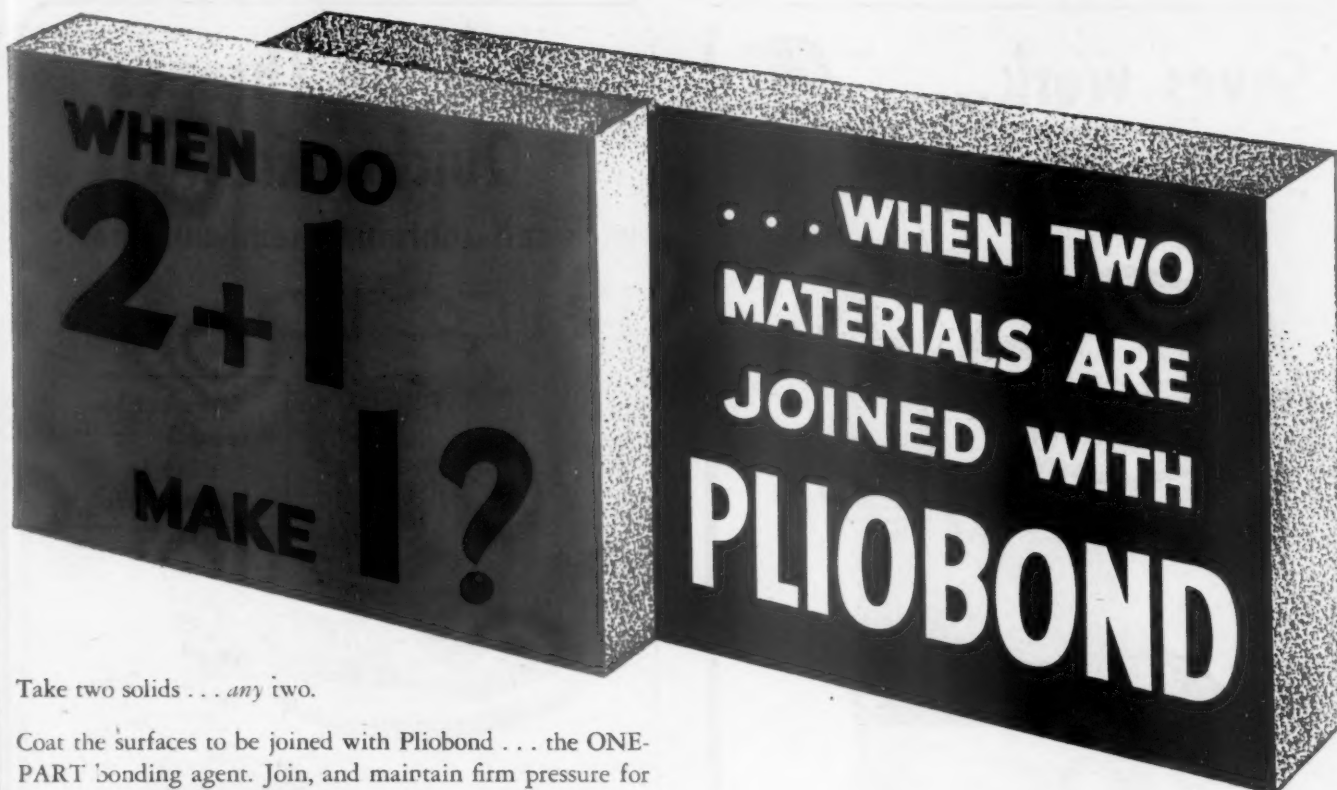
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Take two solids . . . any two.

Coat the surfaces to be joined with Pliobond . . . the ONE-PART bonding agent. Join, and maintain firm pressure for 10-15 minutes. For extremely high shear strength, use moderate pressure, and heat to 200-300°F.

The result of this manufacturing arithmetic is a shockproof, permanently joined unit.

There, in short, are the revolutionary advantages of Pliobond.

It's a *one-part* bonding agent . . . no mixing. It's quick and easy to use . . . apply by spraying, brushing, spreading or roller-coating.

And it's *universal*. You can join anything to anything with Pliobond.

Manufacturing facilities for Pliobond are being increased rapidly to meet your needs. Write us for complete technical information. Be sure to include details on any special problems.

CHECK THESE PROPERTIES OF PLIOBOND:

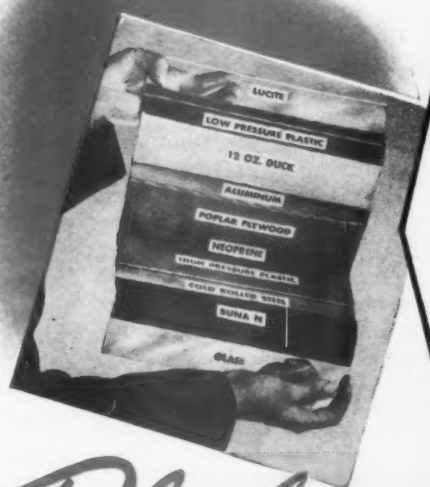
WATERPROOF . . . continued immersion will reduce bond strength, but original value returns on drying.

CHEMICAL RESISTANCE . . . to dilute acids and alkalis and corrosive salt solutions.

INSOLUBLE . . . in gasoline and other petroleum distillates, lubricating oils, alcohol, ethylene glycol and carbon tetrachloride.

FLEXIBILITY . . . an important property in bonding paper, leather, thin metals, fabrics, vulcanized rubber and other non-rigids.

DURABILITY . . . high bond strength, waterproofness, permanent flexibility, temperature resistance and immunity to attack by mildew and fungi mean durability.



NEVER BEFORE

An Adhesive That Bonds

SO QUICKLY!

SO EASILY!

SO STRONGLY!

Take a good look at this picture. *All* of these so different materials, perfectly bonded by one agent . . . Pliobond!

Pliobond **BONDS ANYTHING TO ANYTHING!**

UNITED STATES PLYWOOD CORPORATION . . . Exclusive Distributors

Industrial Adhesives Division: 55 West 44th Street, New York, N. Y. • Branches in Principal Cities

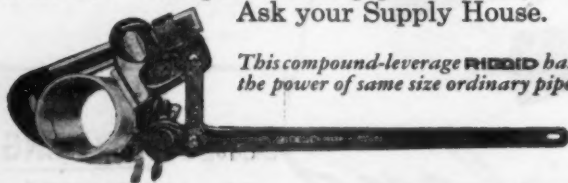
PLIOBOND* is a product of THE GOODYEAR TIRE & RUBBER COMPANY • *Trademark registered, The Goodyear Tire & Rubber Company

Saves work...
Saves money



You do it with less effort with the
RIDGID
and have no housing repair expense

● Pipe men everywhere prefer **RIDGID** because of its efficient balance, easy-spinning adjustment nut, quick clean-action jaws, its handy pipe scale on hook-jaw, its powerful comfort-grip handle. It saves you work, makes it easier. But they like also that guaranteed housing ending all wrench housing expense. It gives you longer service, saves you money. Sizes 6" to 60" — end pattern for pipes in coils, 6" to 36." Ask your Supply House.



*This compound-leverage **RIDGID** has 14 times the power of same size ordinary pipe wrench.*

Precision Threads
Quickly Easily
with self-contained semi-automatic
RIDGID No. 65R



● Save yourself time and effort in threading 1", 1 1/4", 1 1/2" and 2" pipe. This rugged steel-and-malleable 65R gives you precision threads faster and with less effort than you've thought possible. You like the 10 second setting to size with one set of chasers that stay in the die stock (no extra dies to bother with) and the instant-setting foolproof workholder. Precision cut high-speed steel chasers and factory testing of every threader assure you of clean perfect threads, smooth faultless operation. For quicker easier threading buy the 65R at your Supply House.

Millions of **RIDGID**
Tools in use

RIDGID
WORK-SAVER PIPE TOOLS

The Ridge Tool Company
Elyria, Ohio, U. S. A.

WHY you need this SILENT PARTNER in your fixture business



THE QUIET OPERATION of G-E ballasts reduces noise complaints and promotes customer good will

G-E BALLASTS are so designed and built that hum (present to some degree in all a-c devices) has been reduced practically to the point of inaudibility.

For example, the ballast coils are *machine* wound to eliminate "springy layers," and to provide units of unvarying rectangularity. The cores are stacked automatically from high-quality, low-loss steel laminations that are cut to exact dimensions. Thus, precisely the right amount of core steel can be fitted snugly around each coil, and firmly clamped into position to prevent "play" or shifting of parts—so often a contributing cause of noise.

In addition, after all the various ballast components are assembled in a mechanically strong clamping frame, they are impregnated in a moisture-resistant varnish, and cured by baking, and housed in an unusually heavy-gauge steel case. A special compound, that sets like asphalt, is poured (while hot and fluid) over and around all the assembled parts, filling all air pockets and voids and sealing the components to each other and to the ballast case. The result is a solid, cohesive ballast without noise troubles.

As a final precaution, one of the many tests which every G-E ballast must pass is an exacting noise test.

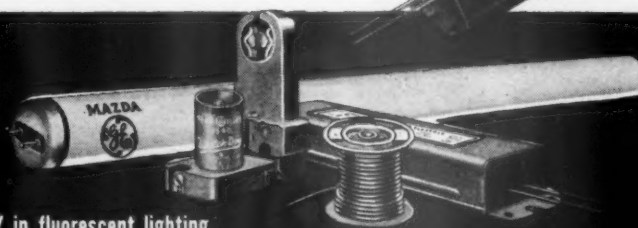
It is attention to details of this sort, and quality control during manufacture, that are responsible for the fact that, of the 16,000,000 G-E ballasts installed since 1938, 99.5 per cent are still giving quiet, successful service.

Write for Bulletin GEA-3293F for data on our complete line of ballasts for fluorescent lighting. *General Electric Company, Schenectady 5, New York.*



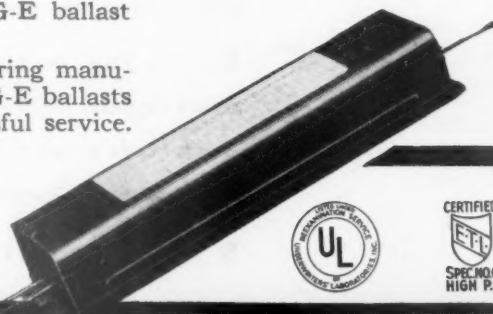
BALLASTS
LAMPS
STARTERS
LAMP HOLDERS

CABLE—stand for **DEPENDABILITY** in fluorescent lighting

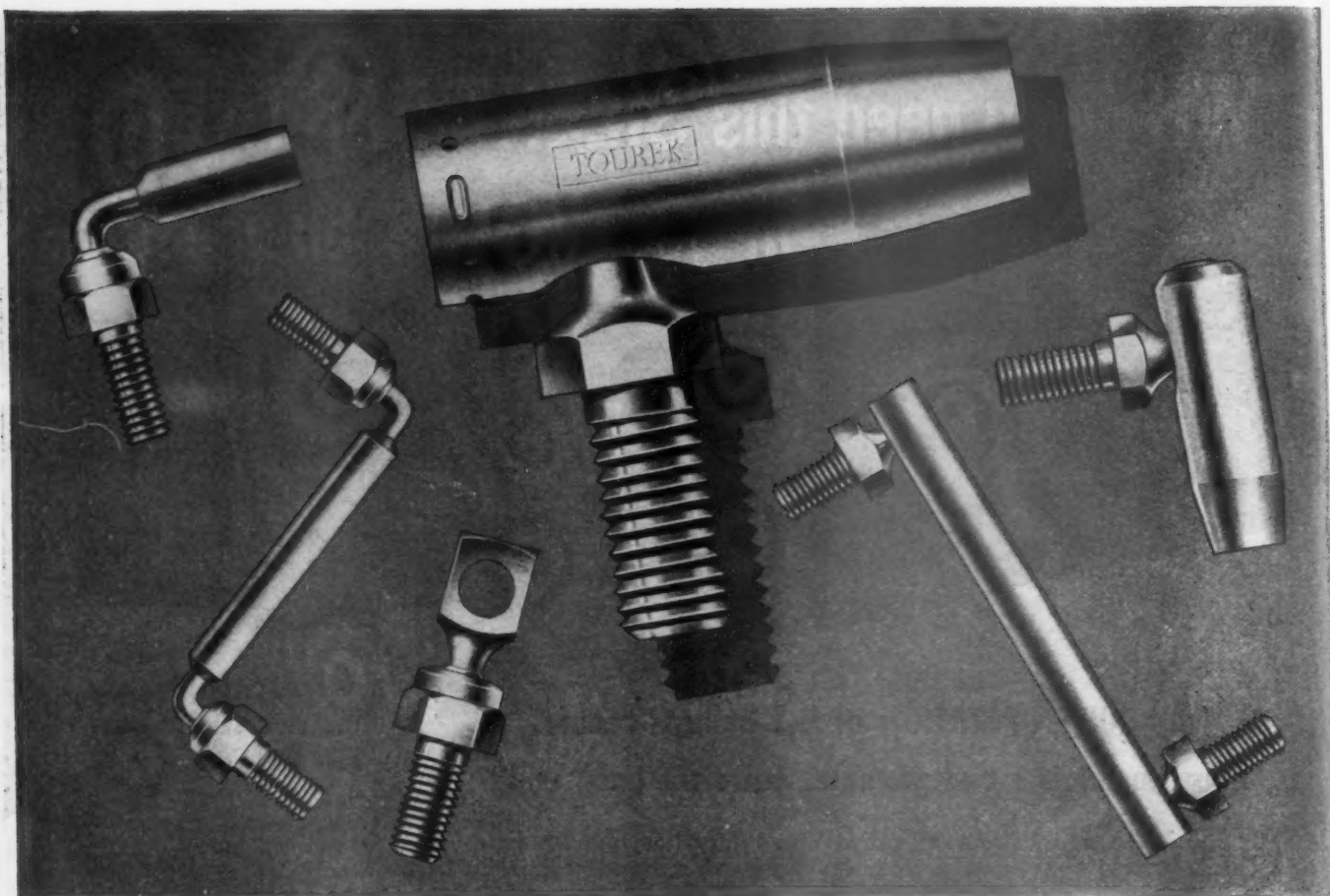


These ballast features help keep fixture users satisfied—they mean added profits for you

1. Low noise level—for satisfied users
2. Long life—for low replacement cost
3. Characteristics matched with lamp—for rated lamp life and light output
4. Dimensions that permit use of one wiring channel for practically all fixtures—for simplified parts inventory and lower fixture cost



Buy all the **BONDS** you can
—and keep all you buy



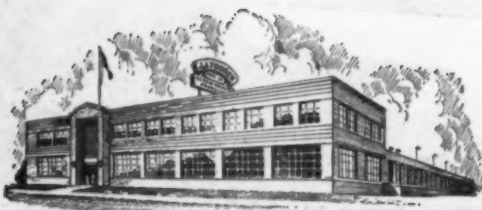
TOUREK BALL JOINTS

The Recognized Standard for Design and Performance!

THE major industries throughout the country specify Tourek Ball Joints where this type of product is needed . . . their plus performance contributes to the safety, dependability and service-life of the products in which they are used.

Tourek has the ability and facilities to meet fully your exact requirements for ball joints . . . *in any quantity . . . stock types available for immediate shipment . . . or custom-made to your blueprints on reasonable delivery schedules.*

WRITE FOR COMPLETE DATA.



**MAKERS OF PRECISION
SCREW MACHINE PRODUCTS**

J. J. TOUREK MFG. CO.
4701 W. 16th St. Chicago 50, Ill.

ESTABLISHED 1920
TOUREK

FAMOUS BALL JOINTS

WHAT HAS HAPPENED IN THE WORLD OF LUBRICANTS?

*Is your plant taking advantage of these new
War-Proved Socony-Vacuum Developments to boost
machine output and cut maintenance costs?*

OUT OF THIS WAR has come a wealth of new lubrication knowledge and experience to increase your machine efficiency . . . and profits.

This message is to call your attention to new products, new methods and new techniques developed by Socony-Vacuum and now available for every plant in every industry.

Here are a few of the most significant new products added to the famous Gargoyle line:

New circulating oils and hydraulic fluids designed for precision machines operating at higher speeds, pressures and temperatures.

New turbine oils with extra oxidation and rust resistance added to a superior base stock.

New greases that are standing up under far higher temperatures and heavier loads than previous products.

New cutting fluids for new machines, and new metals—fluids that are lengthening tool life, providing more accurate finish and increasing

production to new higher levels.

New rust preventives and heat-treating oils for greater protection against corrosion, and faster, more uniform quenching.

With these and other important new product developments, Socony-Vacuum has perfected a new 5-step program to make certain that the *right* oil goes in the *right* place, in the *right* way. This program gives you these extra benefits:

Complete lubrication study of your plant with specific accurate recommendations for the correct lubricants needed for every machine.

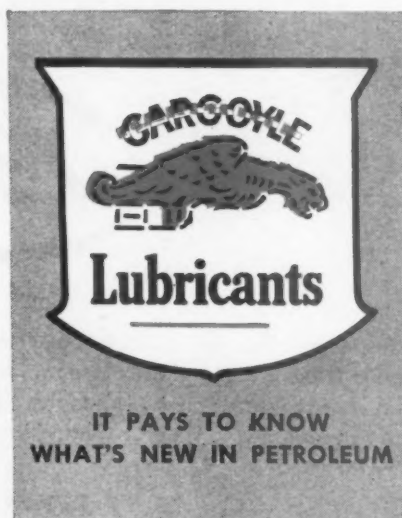
Skilled engineering counsel on difficult lubrication problems.

Lubrication schedules and charts for each machine.

New storage and handling systems to save floor space and manpower.

Progress reports on benefits obtained.

You'll find it will pay you to investigate this program now—and put it to work in your plant.



SOCONY-VACUUM OIL CO., INC.
Standard Oil of N. Y. Division • White
Star Division • Lubrite Division • Chicago
Division • White Eagle Division • Wad-
hams Division • Magnolia Petroleum Co.
General Petroleum Corporation of California

SOCONY-VACUUM OIL COMPANY, INC.

WHAT A WHALE OF A DIFFERENCE

AN **ATKINS** MAKES!

LESS THAN HALF
in 13 min. with
former blade

ALL THE WAY
in 13 min. with an
Atkins Blade

CUTTING REPORT

Material: 6" diam. nickel steel bar
Cutting Time with Previous Blade: 30 min.
Cutting Time with Atkins Blade: 13 min.
Increase in Cutting Speed: 131%

131%

This case of a 131% increase in cutting speed by changing to Atkins "Silver Steel" Blades is on the spectacular side, to be sure. But along with scores of similar cases on record, showing comparable performance, it does prove that metal cutting deserves the closest inspection as a source of worthwhile production savings. Can metal be cut faster? . . . can more cuts be gained per blade?

. . . can tool costs be reduced? These are questions our engineers are ready to help you answer with a positive "yes." Write us to have an Atkins Metal Cutting Engineer call on you.

E. C. ATKINS AND COMPANY

446 S. Illinois St., Indianapolis 9, Indiana

Agents and Dealers in All Principal Cities the World Over



Makers of Better Saws for Every Cutting Job

POWER AND HAND BLADES • MILLING SAWS • SEGMENTAL COLD SAWS • METAL CUTTING BANDS

represents a form of electricity that is hard to hold or control.

Controlling electrical currents is Formica's big job and it can do it today better than ever before. Some new developments in material and processing have provided grades that reduce high frequency losses to a new minimum, stand more arching, resist more heat.

Glass Cloth and glass mat with melamine resin have stepped up insulating efficiency, increased mechanical strength, produced a laminated material on an entirely new level of quality for many purposes.

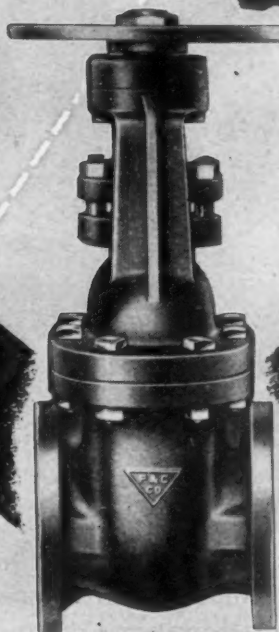
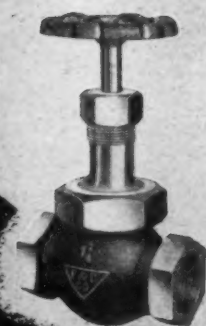
These new materials retain the machinability and workability that always adapted laminated material to mass production. They mean better insulated electrical devices at low production costs.

MORE AND BETTER *Service* FROM TODAY'S VALVES

"RESOLVED:

"That the superintendent
"shall be held responsible
"for the production of goods
"as near perfect in design,
"material and workmanship
"as shall make them merchantable
"and of a character that will serve
"to establish for this company
"a high reputation."

The policy expressed by this early Pratt & Cady Board of Directors Resolution has not been shaken even by the great World War. More than ever before the valves offered by Reading-Pratt & Cady today meet the demand for longer and better service.



R-P&C offers you a single responsible source for bronze, iron and steel gate, globe, angle and check valves—cocks and Lubrotite gate valves—bar stock valves—cast steel fittings—d'Este Automatic Regulating valves.

READING-PRATT & CADY

MANUFACTURERS OF
READING CAST STEEL VALVES AND FITTINGS • PRATT & CADY BRASS AND IRON VALVES
D'ESTE AUTOMATIC REGULATING VALVES

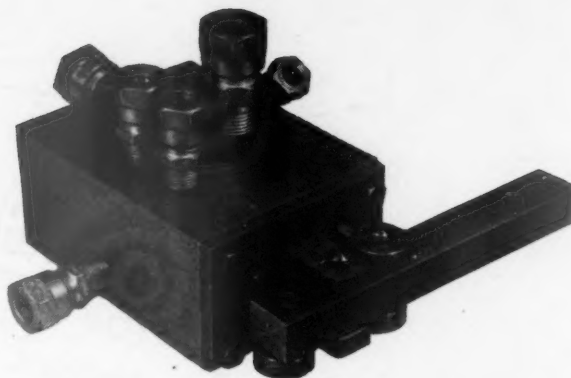
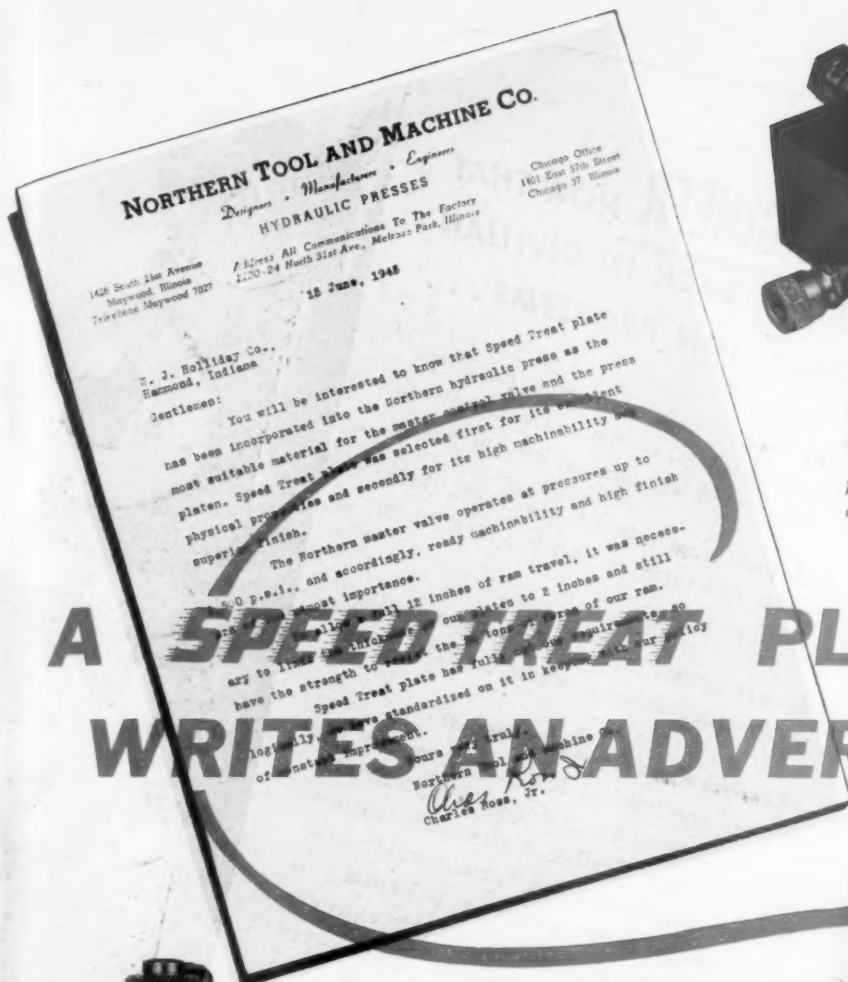
Reading, Pa. • Atlanta • Chicago • Denver • Houston • Los Angeles • New York • Philadelphia • Pittsburgh • San Francisco • Bridgeport, Conn.

READING-PRATT & CADY DIVISION AMERICAN CHAIN & CABLE

ACCO



TRADE
MARK



The Northern Master control valve operates at pressures up to 4,500 p.s.i. Speed Treat plate provides the necessary ready machinability and superior finish!



The Northern Platen must sustain a pressure of 20 tons—Speed Treat plate provides the requisite physical properties!

You will be interested to know that *Speed Treat* plate has been incorporated into the Northern hydraulic press as the most suitable material for the master control valve and the press platen. *Speed Treat* plate was selected, first for its excellent physical properties and secondly for its high machinability and superior finish.

The Northern master valve operates at pressures up to 4,500 p.s.i. and accordingly, ready machinability and high finish are of the utmost importance.

To allow a final 12 inches of ram travel, it was necessary to limit the thickness of our platen to 2 inches, and still have the strength to resist the 20 tons of force of our ram.

Speed Treat plate has fully met our requirements, so logically we have standardized on it in keeping with our policy of constant improvement.

Speed Treat plate is stocked in all standard sizes at twelve strategic, nation-wide points and is available flame cut to size.

W. J. HOLLIDAY & CO.

"Established 1856"

Speed Case-Speed Treat Plate Division, Hammond, Indiana
Plants: Hammond and Indianapolis, Indiana

Quality Controlled Speed Case and Speed Treat Steel Is Available In All Common Plate Sizes from these Distributors

Beals, McCarthy & Rogers, Inc., Buffalo, New York	Earle M. Jorgensen Co., 5311 Clinton Drive, Houston
Brown-Wales Company, 493 C. Street, Boston, Mass.	10516 So. Alameda St., Los Angeles 54, Calif.
The Burger Iron Company, Akron, Ohio	1657 22nd St., Oakland 7, Calif.
Grammer, Dempsey & Hudson, Inc., Newark, New Jersey	Peninsular Steel Co., 1030-40 McDougall Ave., Detroit
Horace T. Potts Company, East Erie Ave. & D St., Philadelphia, Pa.	
Peckover's Limited, 77 Front Street, E. Toronto, Ont., Canada	

**MR. ENGINEER NOW THAT
YOU ARE BACK IN CIVILIAN
PRODUCTION PROBLEMS...**

If you need boots, diaphragms, packings,
gaskets, washers, couplings, valve discs,
or any related mechanical leather parts,

And you want unusual precision, long
service, resistance to shock, vibration or
pressure

As well as resistance to the action of oils,
petroleum products, water or dirt,

Consider these Sirvis advantages:

Sirvis mechanical leather parts can be
made to your exact design requirements,
from tough, flexible, high tensile leather.
They will be selected, tanned and treated
by special Sirvis processes, to assure you
of consistent quality which exactly
meets your requirements. And, every
shipment you receive will have been
manufactured and tested under rigid
laboratory controlled conditions. Be-
cause Chicago Rawhide has been making
mechanical leather parts, for more than
66 years, to the precise requirements of
leading engineers, you can depend upon
Sirvis products to meet your needs.

SIRVIS

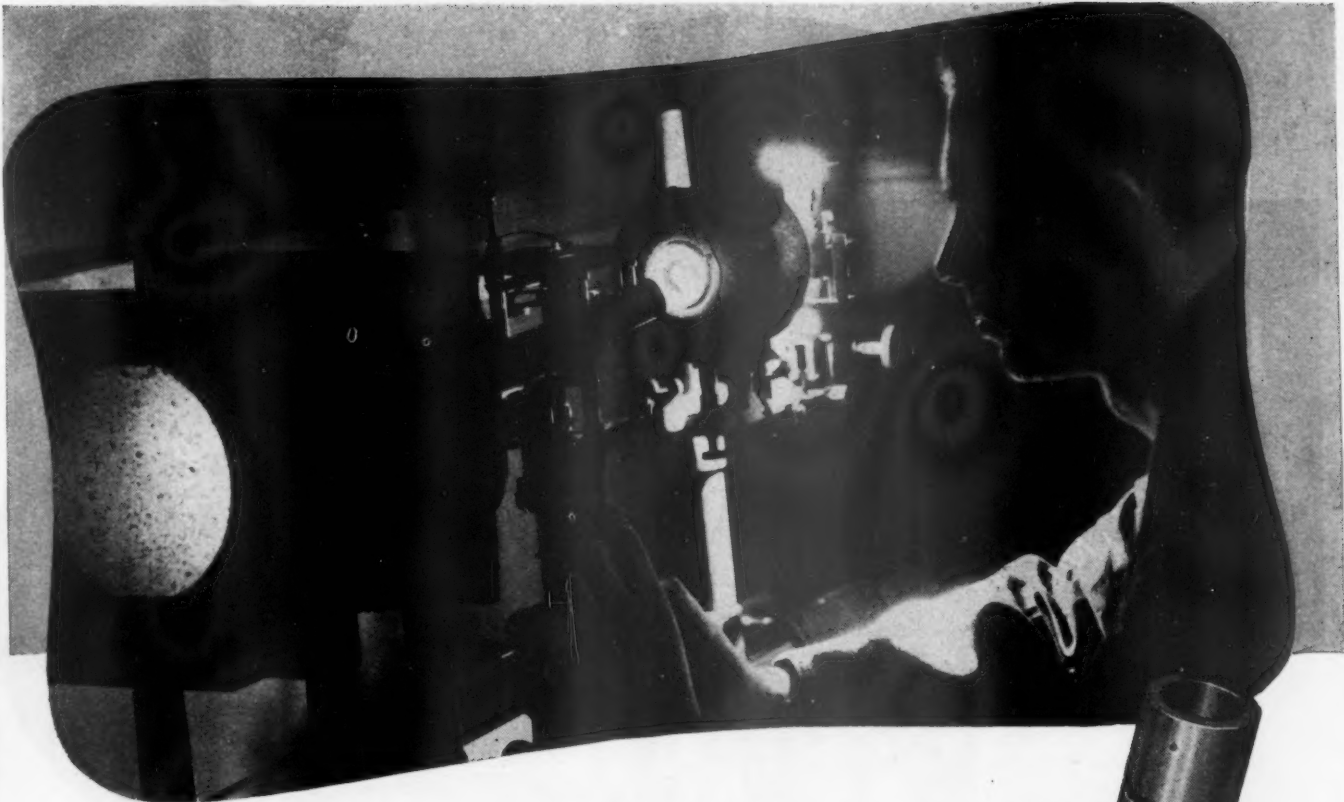
MECHANICAL LEATHERS
Products of

CHICAGO RAWHIDE MANUFACTURING CO.

1305 Elston Avenue

Chicago 22, Illinois



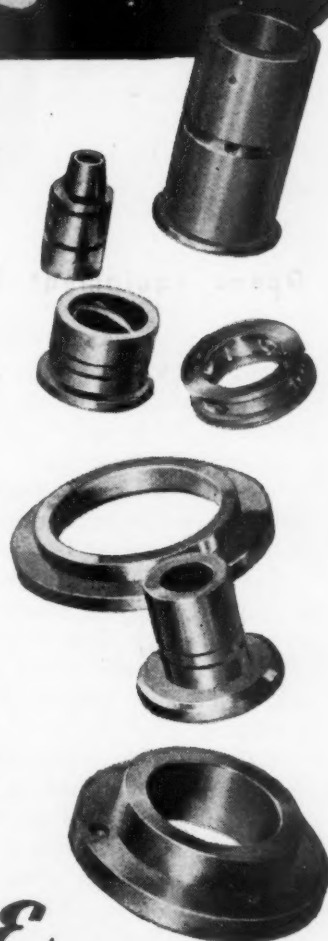


BUCKEYE BEARINGS

Rigid metallurgical control assures
uniform analysis—freedom from porosity
... and unsurpassed serviceability

MANUFACTURED from selected metals under our complete laboratory control of charging ratios and melting and pouring temperatures, assures the production of a uniformly high quality bearing. Each piece, month after month, measures up fully to our exacting specifications.

For easy assembly, and long, efficient, satisfactory service, specify Buckeye Bearings by brand name. They are furnished fully finished in 1088 ready-to-use stock sizes—in cored and solid 13" bars—in several graphited styles—and in any ID, OD and length; slotted, split, drilled or flanged exactly to your special order. No order is too big or too small for Buckeye. Let us quote on your requirements.



Buckeye

BRASS AND MANUFACTURING COMPANY

6412 HAWTHORNE AVE.

BRONZESMITHS

SINCE 1900

CLEVELAND 3, OHIO

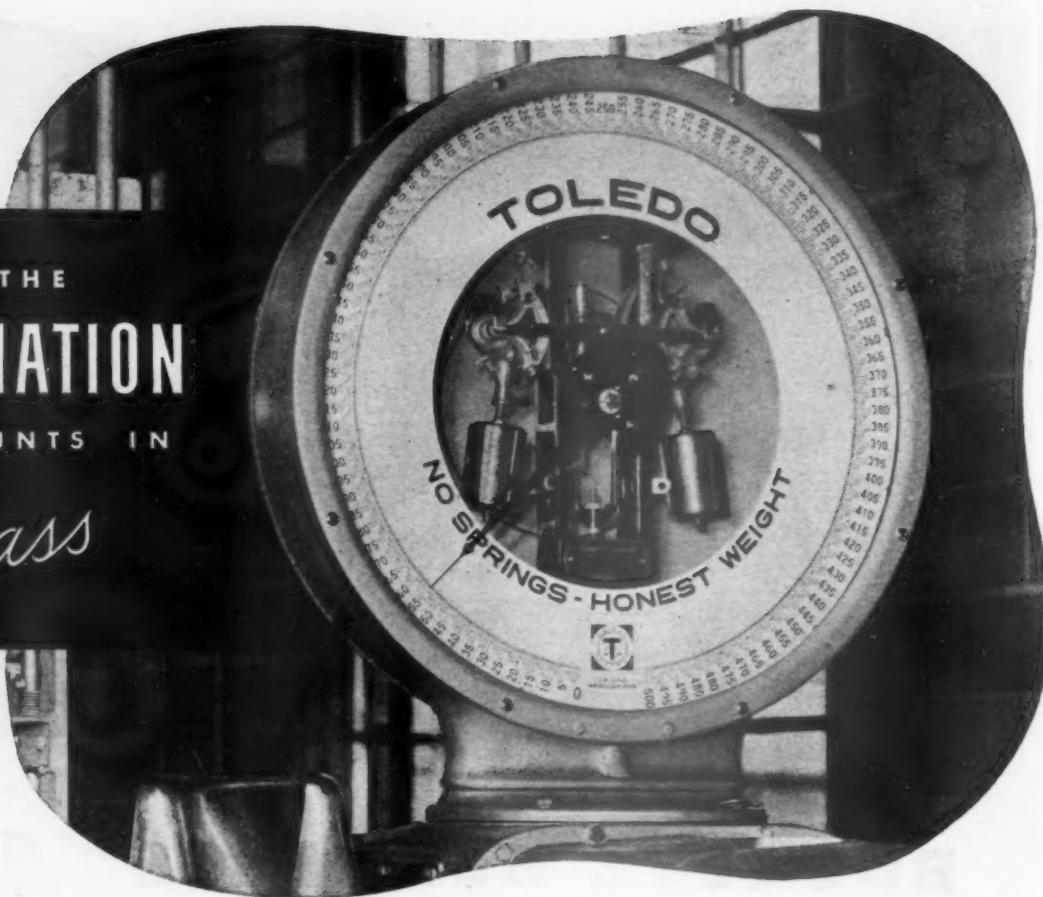


BRONZE SLEEVE BEARINGS • STANDARD SIZES OR TO CUSTOMERS' BLUEPRINT
IN ANY RECOGNIZED BEARING METAL ANALYSIS

IT'S THE
COMBINATION

THAT COUNTS IN

Glass



Opens equipment for visibility... but closes it to dirt and moisture

What goes on inside? Glass lets you see.

With glass, exposure to the eye need not mean exposure to damaging dirt or moisture.

In equipment for home, store or factory, glass performs a valuable service in providing a ready answer to important questions: Is equipment working properly? What is happening to goods in processing? Is supply of raw materials still feeding in?

The agile minds of today's designers have found many ways to employ, singly or combined, the characteristics of glass... such as its high abrasion resistance... its non-porosity... its chemical and dimensional stability... its high strength when tempered... its weathering qualities... its great electrical resistance.

Glass adds beauty, too, with a lustrous, smooth, hard surface that doesn't need refinishing.

This all adds up to the fact that glass is a mighty useful, mighty versatile material. If you are planning new equipment, appliances, processes or buildings, be sure to investigate what glass can do for you. We'd welcome an opportunity to discuss it with you. Libbey-Owens-Ford Glass Company, 61115 Nicholas Building, Toledo 3, Ohio.

Here's the combination that makes GLASS one of the world's most versatile materials:

CHEMICALLY, the most stable of all materials, except the noble metals. Won't rot, oxidize or disintegrate, plus—

DIMENSIONALLY STABLE. Coefficient of expansion extremely low. Keeps its shape, plus—

SURFACE, among the world's hardest and smoothest. Nonporous, won't absorb odors or moisture. More acid-resisting than any structural material. Unusual resistance to abrasion. Weathering qualities unequalled, plus—

STRONG, tempered glass is stronger than some metals. A square foot, $\frac{1}{4}$ " thick withstands pressure of 60 lbs. per sq. in. and thermal shock of 466° F. Will not burn—

ELECTRICAL INSULATOR of outstanding strength.



LIBBEY • OWENS • FORD

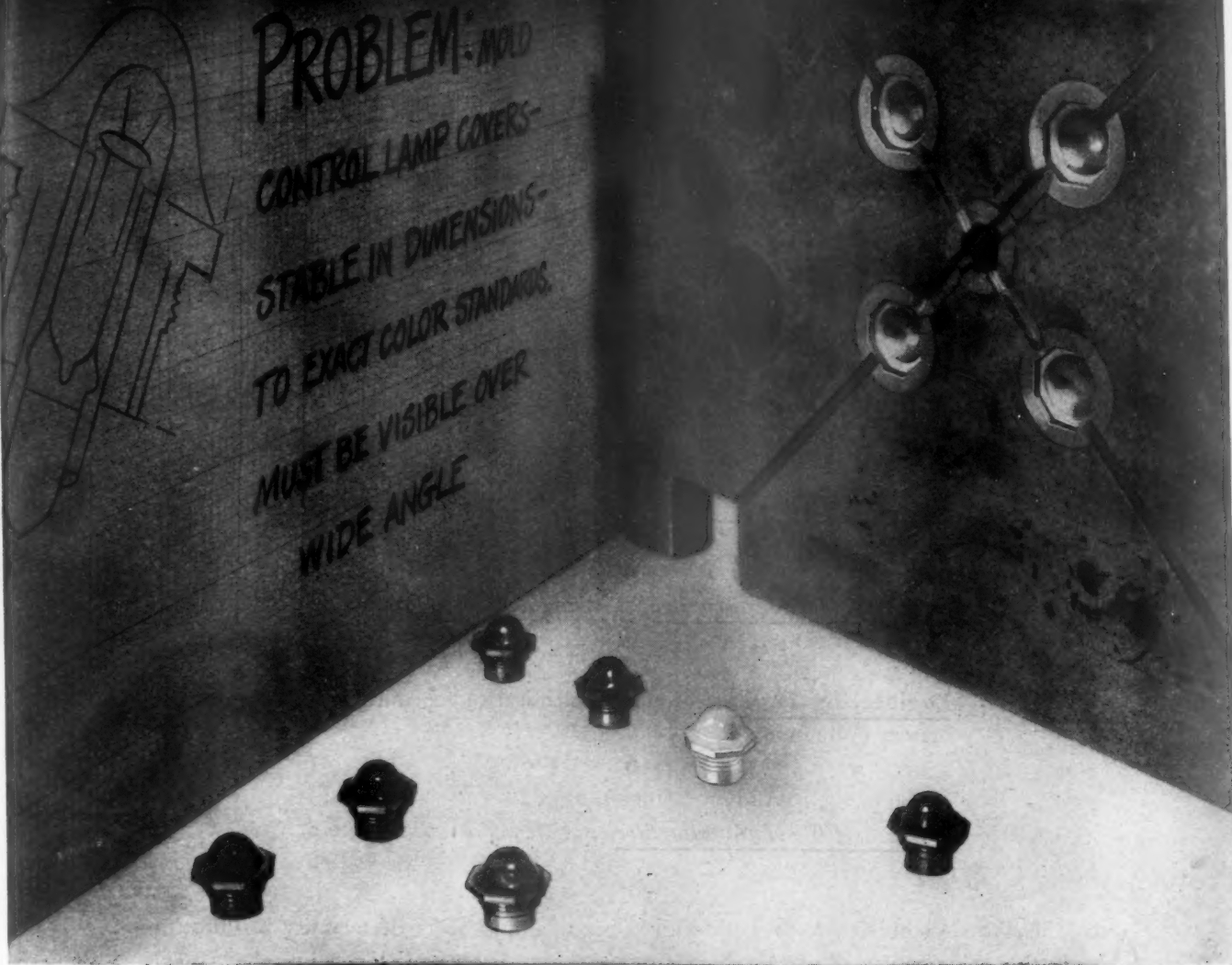
a Great Name in **GLASS**

Destructible? Wood — Metal — Plastics —

Glass. No material is indestructible. However, barring unforeseen conditions, no material will fail on a job in which it has been properly specified and engineered. When our application engineers say "Yes", you can be sure about glass.

DESIGNED AND ENGINEERED AT NO. 1 PLASTICS AVENUE

PROBLEM: MOLD
CONTROL LAMP COVERS—
STABLE IN DIMENSIONS—
TO EXACT COLOR STANDARDS.
MUST BE VISIBLE OVER
WIDE ANGLE



PLASTICS WITH A GLEAM IN THEIR EYE

G-E Complete Service—Everything in Plastics

Backed by 51 years of experience. We've been designing and manufacturing plastics products ever since 1894. G-E Research works continually to develop new materials, new processes, new applications.

No. 1 Plastics Avenue—complete plastics service—engineering, design and mold-making. Our own industrial designers and engineers, working together, create plastics parts that are both scientifically

sound and good-looking. Our own toolrooms are manned by skilled craftsmen—average precision mold experience, 12 years.

All types of plastics. Facilities for compression, injection, transfer and cold molding . . . for both high and low pressure laminating . . . for fabricating. And G-E Quality Control—a byword in industry—means as many as 160 inspections and analyses for a single plastic part.

• Helping to keep the heaviest rail traffic in history flowing smoothly, these indicator lamp covers gleam on switchboards in railroad signal towers across the country.

The same plastic signals flash their warnings on other control boards . . . in submarines deep beneath the Pacific . . . on vital electronic equipment in industry.

Available in colors of the Standard Railroad Color Code, these jewel-like translucent plastic products were designed at No. 1 Plastics Avenue and are injection-molded by General Electric.

Tremendous trifles like these receive full engineering and design attention from G. E.'s complete plastics service. Bring your plastics problem—no matter how large or small—to General Electric—the world's largest manufacturer of finished plastics parts. Write Plastics Divisions, General Electric Company, 1 Plastics Avenue, Pittsfield, Mass.

GENERAL  ELECTRIC

CD45-AB

★ **SAVE TIME...REDUCE COSTS** **by** **THIS 6-STEP MANUFACTURING PLAN** ★

When you call Kellett into consultation on your present or postwar design and production program, you have the choice of any or all of these 6 services, in any combination your job requires:

1

Engineering Design, by a skilled staff of practical engineers.

2

Tool Design and Manufacture, with ample facilities available.

3

Photographic Reproduction for loft-template or direct manufacturing application.

4

Experimental Manufacture of single-item or pilot models in metal or wood.

5

Engineering Testing through mechanical and chemical laboratory evaluation.

6

And most important of all—

Metal and Wood Manufacture, specializing in sheet metal and welded steel assemblies.

AND when you retain Kellett to work with you through some or all of those 6 steps, it is as if you had added an entirely new, thoroughly-trained, highly-specialized staff, and Kellett's modern plants, laboratories and testing equipment, to your own organization—*without a penny's increase in your capital investment.*

With 16 years of successful experience in the exacting field of autogiro and helicopter de-

sign, and 4 years of quantity production of \$30,000,000 worth of metal products on prime and sub-contract, Kellett is well prepared to cooperate with you. These 6 steps may enable you to improve product and tool design—speed up production and to simplify reproduction operations—and assure the mass manufacture of simple or complex products developed for industrial or consumer markets.



A product of Kellett design, engineering and production—the XR-8 U.S. Army helicopter.

If you will simply write us to outline your design or production problems, we shall be glad to advise you specifically as to the ways in which Kellett may prove helpful in solving them. Write to Kellett Aircraft Corporation, Upper Darby, Pa.

★ **KELLETT—** **SUBCONTRACTOR** ★

What kind of *Oil* are your bearings being fed?



A LAZY OIL
that only lubricates

... **OR**
HARD-WORKING
TALPEX
that not only
lubricates but does
4 extra jobs



1. Has high detergency. Helps keep carbon, lacquer and foreign particles from adhering to pistons and rings, valves, ports.

2. Has exceptional Oxidation Stability. Holds to a minimum the formation of sludge, lacquer and other products of deterioration.

3. Has low Carbon-Forming Tendency. Reduces ring sticking and wear. Lengthens engine life.

4. Is non-corrosive to alloy bearings. Protects all lubricated engine parts against corrosion.

• You may think you've "hired" the hardest-working oil in the world to lubricate your engines. Then bang! You're in hot water. That's the trouble with a lazy oil. Its laziness shows up *after* you use it. Then the damage is done. To avoid engine troubles caused by an oil that does only one or two jobs in your engines, switch to hard-working Talpex. It not only does a good job of lubricating, it does all of the 4 *extra* jobs that must be done if your engines are to be kept perking at their efficiency peak.

If the oil you now use is not doing all these jobs, it's lazy—should be changed to hard-working Talpex. Ask the Shell man to show you why.

Shell Oil Company, Inc., 50 West 50th Street, New York 20, N. Y.—100 Bush Street, San Francisco 6, Cal.

TALPEX

The All-Purpose, Heavy-Duty Lubricant
for trucks, buses, tractors, shovels, stationary and marine Diesels





Preformed wire rope

SAVES MONEY 3 WAYS

Are you looking for new ways to cut your production costs? Then follow the lead of successful operators, in every industry, who use Preformed wire rope. Their records prove that it saves money. First, because it lasts longer.

This results from Preformed's ability to resist bending fatigue. Second, it saves money because it withstands heavy shock loads and thus helps avoid costly shut-downs. Third,

Preformed spools better on the drum, and helps to maintain a profitable speed of operation. You can gain these and many other advantages by specifying Preformed the next time you order wire rope.

ASK YOUR OWN WIRE ROPE MANUFACTURER OR DISTRIBUTOR



Here's Strength and Toughness* to Take the Place of **MASS** *Formability, too

N-A-X HIGH-TENSILE steel ties in with the modern trend in the nation's automotive industry away from mass toward lighter, more efficient designs.

Its great inherent strength and toughness—made practical by the exceptional formability of this fine-grained steel—can be applied to cut down deadweight or increase strength in a score of automotive parts. Frames, wheels, spring suspensions, torque arms, engine supports, body parts and bumpers are examples of automotive parts

that can benefit by the outstanding properties of N-A-X HIGH-TENSILE steel.

Let's boil it down to this: Where reduced mass and weight are desirable, N-A-X HIGH-TENSILE can cut them down without sacrifice of strength. Where increased strength and durability are demanded, N-A-X HIGH-TENSILE can do the job using the same sections. And where strength combined with exceptional cold-formability is the primary goal, as in the case of bumpers, N-A-X HIGH-TENSILE is outstanding.

GREAT LAKES STEEL

Corporation

N-A-X ALLOY DIVISION • DETROIT 18, MICHIGAN

GREAT STEEL
FROM
GREAT LAKES

UNIT OF NATIONAL STEEL CORPORATION



LIKE MORE

light

READ THESE

facts*

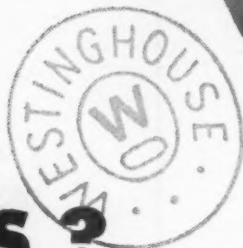


Westinghouse

PLANTS IN 25 CITIES

OFFICES EVERYWHERE

LAMPS FOR SEE-ABILITY



ON LAMPS ?

ON FLUORESCENTS

* Lamp buyers by the thousands have learned that they can look to Westinghouse for thorough-going lamp satisfaction.

* These buyers are hard-headed businessmen — satisfied Westinghouse users in stores, offices, plants and other buildings all over the U. S.

* In order to keep these thousands upon thousands of people pleased with Westinghouse Lamps, Westinghouse maintains an elaborate system of testing, checking, inspecting—all the way from raw materials

to finished, packaged lamps. This is costly—but pays off in customer satisfaction.

* Westinghouse always has maintained year-in, year-out, never-stop research.

* Continual improvements in manufacturing technique mean continual improvements in the lamps themselves.

* For these reasons, if you want to get the most out of a lighting system, it pays to use Westinghouse Lamps. Westinghouse Electric Corp., Lamp Division, Bloomfield, N. J.

WESTINGHOUSE PRESENTS *John Charles Thomas*, Sunday, 2:00 P. M., E. W. T., N. B. C.
Tune in *Ted Malone*, Monday through Friday, 11:45 A. M., E. W. T., Blue Network

DUREZ

PHENOLIC RESINS

MOLDING COMPOUNDS

INDUSTRIAL RESINS

OIL SOLUBLE RESINS

MOLDING COMPOUNDS



DESIGN ENGINEERS ARE TOASTING THE VERSATILITY OF PHENOLIC PLASTICS

Already there are hundreds of new and improved products waiting in readiness for post-victory markets... products which have made good use of the versatility of Durez phenolic plastics. Take this eye-appealing toaster, for example. The base and knobs are molded from a Durez phenolic compound which possesses such desirable properties as dielectric strength, brilliant finish, excellent moldability, and resistance to heat and moisture. These characteristics—and many more—are inherent in all of the more than 300 Durez phenolic molding compounds... make them the natural starting point when you're looking for the plastic that fits your job.

INDUSTRIAL RESINS



THE NEWEST THING AFLOAT IS THIS MOLDED PLASTIC BOAT

When you stop to consider such properties as extreme toughness, moisture resistance and facile moldability, which Co-Ro-Lite (a combination of sisal fiber and Durez resin) possesses, a sailboat molded from this material seems a logical step forward in plastics progress. This is exactly what has occurred, and the Co-Ro-Lite sailboat has passed every test to date. This new application is but one of many recent developments which use versatile Durez resins.

OIL SOLUBLE RESINS



THE INSIDE STORY ON OUTSIDE PAINTS

Many leading paint manufacturers incorporate Durez phenolic resins in their better quality outside paints—such as house paints—because these remarkable resins speed up the time of set, eliminate water spotting, improve gloss retention, and help prevent mold formation.

HERE'S WHAT YOU'VE BEEN WAITING FOR



Right off the press, the Durez Plastics Primer is a brand new, illustrated booklet about phenolic plastics and is especially designed for quick reading by today's overburdened executive. Not for the technical man who is already familiar with the subject, the Durez Plastics Primer is a brief, simple, crystal-clear digest filled with basic facts covering the part the phenolics play in the over all plastics picture. Clip the attached coupon and send for your free copy. Absolutely no obligation, of course.

Durez Plastics & Chemicals, Inc.
4611 Walck Road, N. Tonawanda, N. Y.

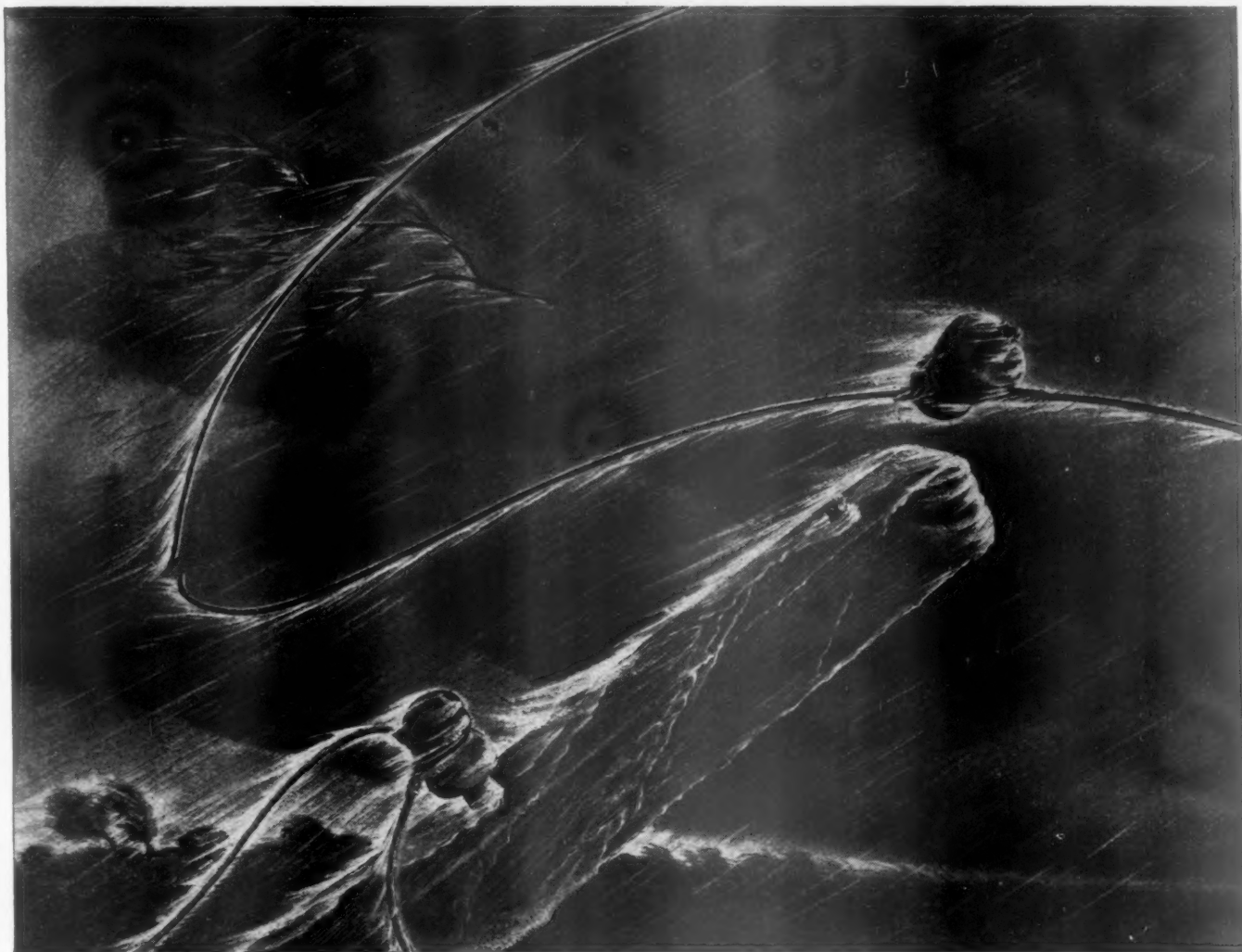
Please send me a free copy of the new Plastics Primer.

Name _____

Company _____

Address _____

PLASTICS THAT FIT THE JOB



When lives hang by a *thread* of wire

Through a single wire or cable flows electric power upon which, at times, the safety of many lives may hang. And its sudden breakage—by storm, fire or other cause beyond the control of the ever-vigilant utility company—may bring serious trouble.

Many hospitals, schools, theatres and other buildings are safeguarded against such danger. They are equipped with a supplementary source of light and power—the

Exide Emergency Lighting Unit. Thus when emergencies arise, the change to battery power is *instant* and *automatic*.

There are Exides for every storage battery need. Exide Batteries furnish motive power for the efficient, time-saving, electric industrial truck and for mine locomotives, trammers, and shuttlecars. Exides are

used by central power stations, telephone and telegraph companies, radio stations, railways and in ships and aircraft of all classification. And in millions of cars, trucks and buses these powerful, long-lasting batteries continue to prove that "When it's an Exide, you start."

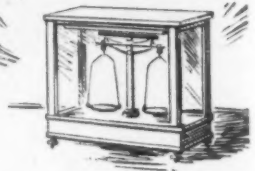
For 57 years the name Exide has stood for dependability and long-life. Information regarding the application of storage batteries to any business is available upon request.



THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32

Exide Batteries of Canada, Limited, Toronto

ACCURACY*



Who tests the test gauge? . . . is a question like "who wakes up the bugler?" Here is the way it is done on the most modern dead-weight tester. Test gauges like the one being checked are used in turn to check the indications of production gauges as illustrated below. We constantly re-check these test gauges on which the accuracy of production gauges depend.

. . . . Marsh Gauges have it and keep it

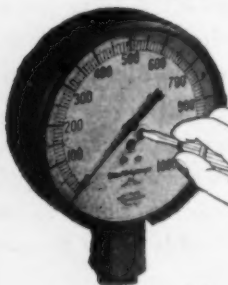
THE phrase "individually factory tested" can mean much . . . or little. All instruments are necessarily given some kind of final test, but unless this test is thorough and exhaustive some inherent inaccuracy may soon develop in service.

Every Marsh Pressure Gauge is put through tests that are bound to uncover the most remote source of trouble. There are many "go and no go" tests on individual parts in the manufacturing process, and the final test is made by experienced operators using the most accurate testing equipment.

Two phases of final testing are illustrated—the verification of test gauges, and the use of these test instruments in putting production gauges through their paces.

Yes, every Marsh instrument must prove accurate before it reaches you, and when it goes into service you will find that Marsh construction will *keep* it accurate even under the toughest conditions.

JAS. P. MARSH CORPORATION
2034 SOUTHPORT AVE., CHICAGO 14, ILLINOIS
Export Department: 155 E. 44th St., New York 17, N. Y.



**the gauge with
the "RECALIBRATOR"**

■ We not only built them to stay accurate, we also give you the easiest, quickest and best way to restore accuracy when extreme shock knocks them out of adjustment.



They must be right. The gauge under test must be made to agree with the extremely accurate test gauge—not just at one or two places on the scale, but all the way through.

MARSH GAUGES

DIAL THERMOMETERS
HEATING SPECIALTIES

*One of a series of advertisements high-lighting the factors that make Marsh instruments "THE STANDARD



MOLDED GOODS
RUBBER AND SYNTHETICS



PLUG — typical of the many molded parts for electrical and ignition systems where extreme accuracy resulting from uniform compounding and curing, and fine finish are necessary.



OIL SEAL RINGS — typical of millions molded by Acushnet, ranging in inside diameter from $\frac{1}{4}$ " to 20". . . . Compounds are available for low or high swell as desired.



INTAKE PIPE PACKINGS — developed as a substitute material, synthetic rubber packings have reduced both the cost of parts and the hours of assembly labor. Developed for low volume change in fuel and lubricants with high modulus and good heat resistance.



DUST BOOT — this bellows protects the part contained from external dirt, dust and abrasion.



INTAKE PIPE CONNECTION SEAL — this, like most items shown on this page, is made to AMS specifications. This connection seal is made to AMS 3212.

ACUSHNET

RUBBER AND SYNTHETICS

PRECISION • MOLDED



The same experience and skill and painstaking effort which has won Acushnet five Army-Navy "E" Awards is at your service — war orders permitting. Acushnet Process Co., New Bedford, Mass.

POWELL VALVES *For* RECONVERSION

We are lucky in having no reconversion problems at Powell. We'll just go on making valves to meet every requirement of American Industry. They will be the same top quality valves that made such a notable contribution to the war effort when long-life, dependable performance and minimum maintenance were so essential to maximum production.

But, for those who have problems of reconversion or replacement of flow control equipment, POWELL offers a complete line of valves of all types—Globe, Angle, Gate, Check, "Y", Relief, Non-return, Flush Bottom Tank, etc.—not only in bronze, iron, and steel but also in a wide variety of pure metals and special alloys to meet every requirement for corrosion or wear resistance (Catalogs on request).

And if you have any special or unusual problems in flow control, POWELL Engineering will help you solve them.

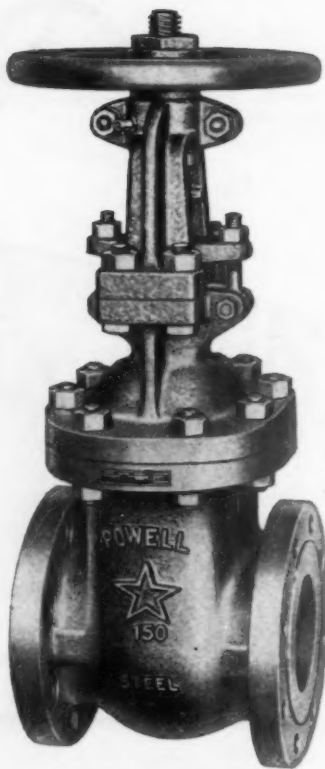


Fig. 1503—Class 150-pound Cast Steel Gate Valve. Flanged ends, outside screw rising stem and bolted flanged yoke.

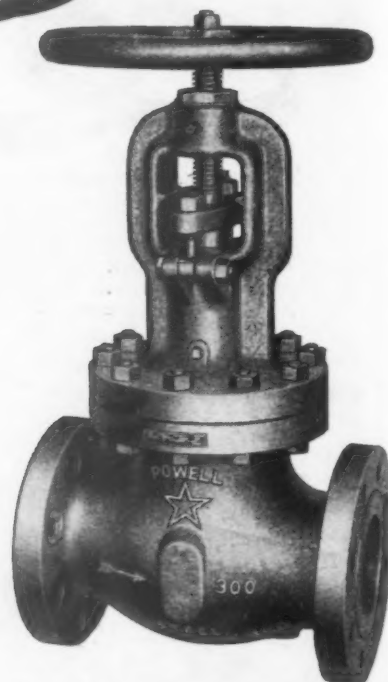


Fig. 3031—Class 300-pound Cast Steel Globe Valve. Flanged ends, outside screw rising stem and bolted flanged yoke.



Fig. 1561—Class 150-pound Cast Steel Swing Check Valve. Flanged ends and bolted cap. Disc has ample lift to permit full straightway unobstructed flow through the valve body.

The Wm. Powell Co.

Dependable Valves Since 1846

Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

POWELL VALVES

RELIEVES "SPLITTING" HEADACHES

Twin-Fast's relieved shank diameter minimizes danger of stresses that might cause fractures or fissures.

Twin-Fast's shank diameter is less than its thread diameter (major diameter). This eliminates the wedge action and prevents the stresses set up by the "bulky" shank of the conventional wood screw. Consequently, Twin-Fast Screws eliminate splitting of the wood—a costly "headache" in most wood-working plants. They also allow for the natural expansion and setting of the wood fibres.

What's more, Twin-Fast's relieved shank increases the holding power, because it does not push the fibres away from the threads, weakening the seating. And the process of manufacturing Twin-Fast Screws assures perfect shank uniformity—every time—a plus for fit and fastening speed. Send for Twin-Fast samples and literature today.

OTHER TWIN-FAST FEATURES

Twin, parallel threads spiral root from opposite sides, providing twice the thread pitch of ordinary screws. Driving time and costs are cut in half!

Cylindrical construction (not tapered) increases thread area for tighter seating, greater holding power. Often, fewer and shorter screws may be used.

Single, sharp, centered point where twin threads terminate assures quick starting, self-centering, balanced driving. No eccentric "crawling"—no misalignment!

Twin-Fast Screws come in steel or brass; round, flat, or oval heads; standard sizes and thread count.

**BY ALL MEANS
BUY BONDS!**

FOR FASTER PRODUCTION—STRONGER CONSTRUCTION
TWIN fast
REG. U. S. PAT. OFF.
TWIN THREAD WOOD SCREWS

Patents 2314390, 2314391,
2373878, 2373948; Canadian
Patents 500695, 500696, Other Pat. Pending

The Blake & Johnson Company makes many thousands of different types of fastening devices in all standard metals.

THE BLAKE & JOHNSON COMPANY SINCE 1849
WATERVILLE, CONNECTICUT



NO FLARE
NO WELD



NO THREAD
NO SOLDER

They're different

they're improved Ermeto fittings!

Weatherhead Ermeto fittings are made in all sizes and types. They can be furnished in O.D. tube or in nominal pipe sizes from $\frac{1}{8}$ inch to 2 inch O.D. Ermeto fittings for special installations are also available for a wide variety of uses. These fittings have been field tested and approved in thousands of installations on hydraulic, oil, water, gas and fuel lines. They will withstand excessive vibration for an indefinite period and hold beyond the burst strength of the tube itself. For information or literature, write or phone any Weatherhead branch office.



Write today for this new Ermeto catalog. It's free!


Look Ahead with 

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND * OHIO

Branch Offices: New York, Philadelphia, Detroit, Chicago, St. Louis, Los Angeles

AR
sion c
ticula
gives
physi
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SYNTHETIC RUBBER GASKETS

Precision compounded to meet your needs

ARMSTRONG offers a full line of specialized synthetic rubber gasket materials. Each one is precision compounded. Each one is formulated with the particular synthetic best suited to its purpose. Each one gives you an exact, uniform combination of the desired physical properties.

This wide line of precision materials enables Armstrong to provide effective, on-the-spot solutions to most sealing problems where temperatures range from minus 70° to plus 300° F. Behind this complete sealing service is our more than 27 years of experience in processing rubber and rubber-like products and in meeting many varying types of gasketing requirements.

Whatever your sealing problem, you'll find it pays to consult an experienced Armstrong Gasket Engineer. He will give you expert, unbiased recommendations based on Armstrong's wide variety of sealing products. Besides synthetic rubber gasket materials, the Armstrong line includes cork, cork-and-synthetic-rubber compositions, fibrated leather and other fiber sheet packings, and rag felt papers. These materials are available in sheets, rolls, ribbons, and tapes, as well as in pieces die-cut to your specifications.

For same-day service on special die-cut gaskets,

check with your near-by gasket cutters. Many leading cutters now stock Armstrong's specialized sealing materials. For specification data, write for your free copy of "Gaskets, Packings, and Seals."

Address Armstrong Cork Co., Gaskets and Packings Dept., 7211 Arch St., Lancaster, Pa.



ARMSTRONG'S INDUSTRIAL PRODUCTS: GASKETS, PACKINGS, SEALS, and MECHANICAL SPECIALTIES of Cork, Synthetic Rubber Compounds, Cork-and-Synthetic-Rubber Compositions, Cork-and-Natural-Rubber Compositions, Fiber-Type Materials, and Rag Felt Papers • RESILIENT SURFACINGS for desks, bars, counters, etc. • FLOORINGS for buses, railway cars, etc. • TEXTILE-MILL SUPPLIES • SHOE MATERIALS • ADHESIVES • GLASS INSULATORS for communications, power

**ARMSTRONG'S
GASKETS • PACKINGS
AND SEALS**

SOMETHING SPECIAL in SMALL ORDER SERVICE

You may need only experimental development of a spring—or emergency replacements—or a small production lot. But you need *fast service*.

Gibson's Small Order Department, made more flexible and fast-acting, now gives you better-than-ever service—with the same high standards of quality prevailing. It's a service of convenience—use it with confidence.



The William D. Gibson Company

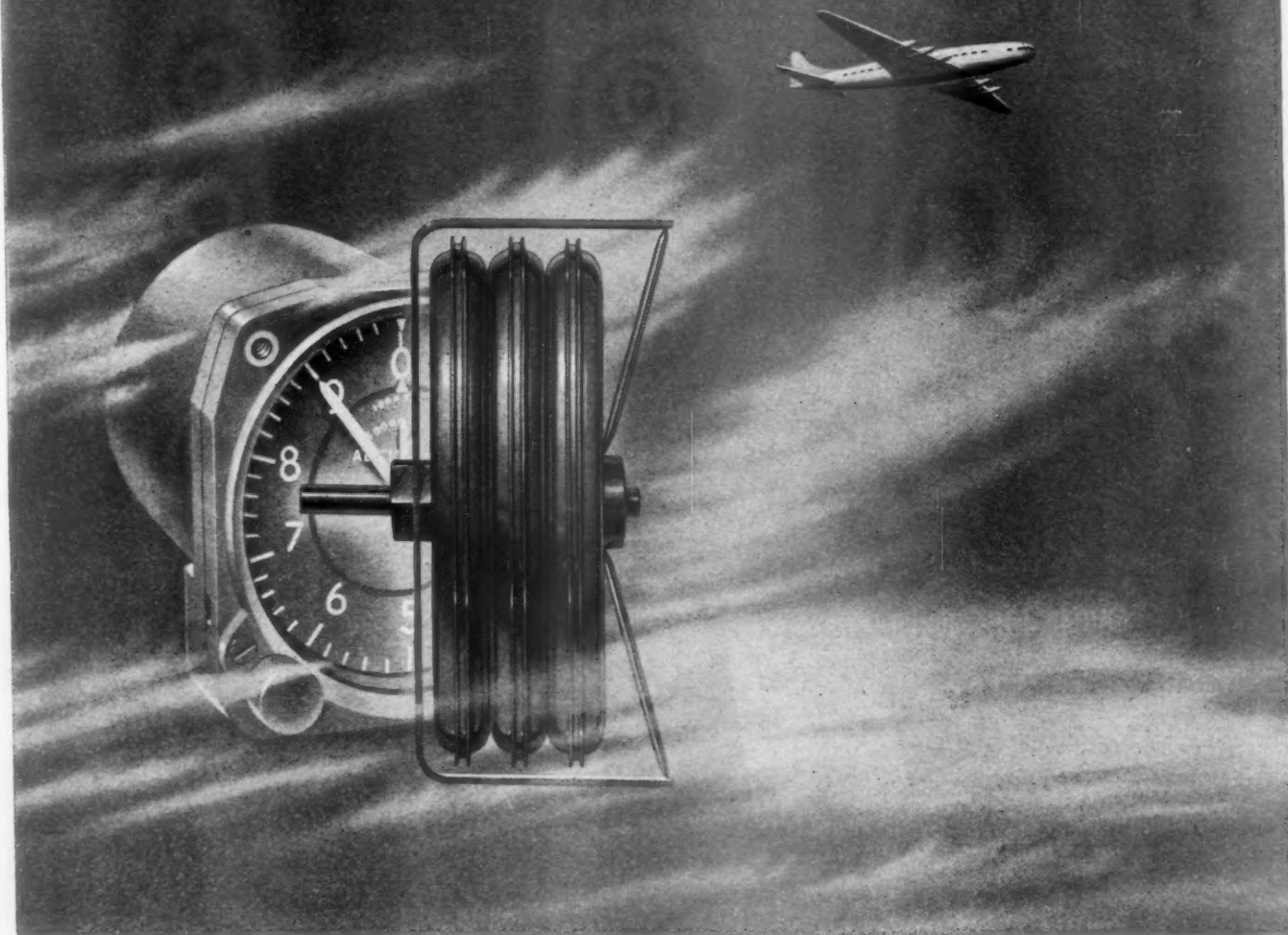
DIVISION OF ASSOCIATED SPRING CORPORATION

1800 Clybourn Ave., Chicago 14, Illinois



GIBSON-SPRINGS

M A S T E R S O F P R E C I S I O N



$\frac{1}{4}$ inch = 9 miles up

Just imagine trying to measure 47,520 feet with a ruler only a quarter of an inch long! That in effect is what the diaphragm of the altimeter in the picture does.

Each time the 'plane climbs 20 feet, the lessening air pressure expands the diaphragm nine one-hundred-thousandths of an inch—equivalent to approximately $\frac{1}{13}$ th the diameter of a human hair—but when the 'plane is nine miles high the total of the device's expansion is *only a fourth of an inch*.

C. G. Conn, Ltd., of Elkhart, Ind., manufacturers of the altimeter, were able to reduce rejections of diaphragms from 30% to just 5% when they switched to Western Super-X phosphor bronze. Thus, keeping 'planes flying just where they ought to be is another of the many war jobs being performed efficiently by a Western "tailor-made" copper-base alloy.

You, too, might find it beneficial to investigate Western metals. Our mills at East Alton, Ill., and New Haven, Conn., deliver alloy metals as *specified* . . . in sheet, strip, long coils or stamped parts. Your inquiry will be welcomed.

WESTERN BRASS MILLS

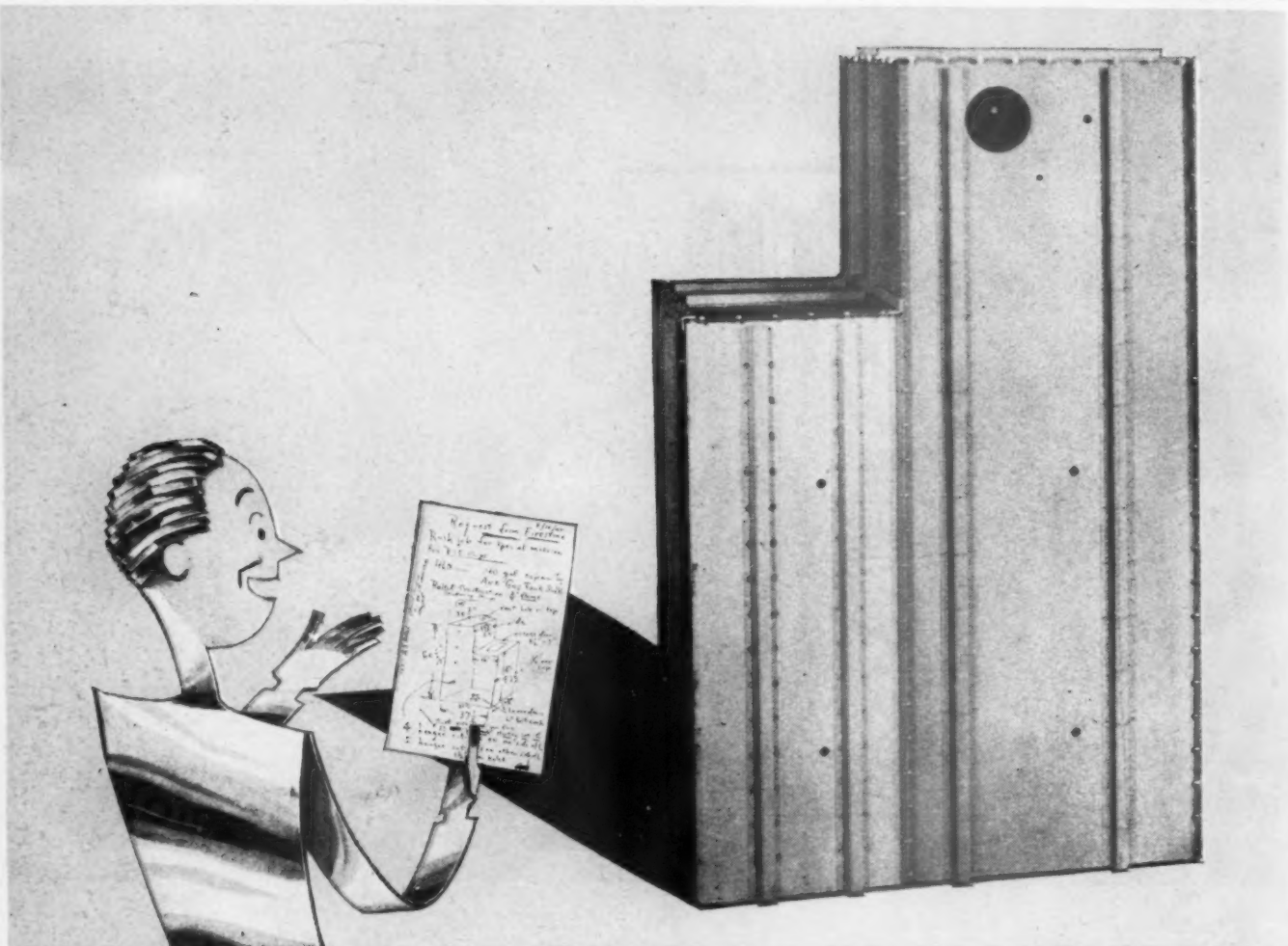
DIVISION OF OLIN INDUSTRIES, INC.

East Alton, Illinois



BRASS • BRONZE • PHOSPHOR BRONZE • NICKEL SILVER • COPPER

Just a "DOODLE" August 30 Ready for Production September 30!



● A special mission for B-25-J bombers called for extra cruising range—extra gas tanks. Specifications for the required tanks were phoned to us on August 30, 1944... hastily jotted down on a slip of "doodling" paper. Next day, a hurried conference of our management brought a quick "Yes, we will do it."

Photostatic copies of original drawings of this tank, originating in Australia reached us on Sept. 7... it was necessary to re-draw each elevation in full-scale.

Details of assembly were incomplete. Lacking, too, was information regarding reinforcing members required. Open-

ings at various points in tank were only approximately located. Despite these handicaps, we completed our estimate, prepared from pencil sketch. On Sept. 8 we submitted our final bid. To make an exciting story short, we succeeded in being ready for production in 30 days.

Doing the "almost impossible" became a habit with the Metal Men of Manitowoc during the war years. In the peace years that lie ahead, all users of stampings, rolled sections of aluminum and other metals will profit by the war-tested and peacetime experience that awaits you here.



For a view of the widely varying kinds of war products we've been turning out... and for peacetime ideas they may start... write for free copy of photo-story.

CONTRACT, AUTOMOTIVE AND AVIATION DIVISIONS

ALUMINUM GOODS

Manufacturing Company

MANITOWOC

200 FIFTH AVE., NEW YORK 10

WISCONSIN

MERCHANDISE MART. CHICAGO 54

ALSO MAKERS OF MIRRO, FINEST ALUMINUM COOKING UTENSILS

ASBESTOS IN ACTION

K&M EBONIZED ASBESTOS

THE SUPERIOR ELECTRICAL INSULATION

*...meets
exacting
demands*

1. Exceptionally high dielectric strength.
2. Uniform density throughout.
3. Withstands severe shock, vibration and wide temperature variations.
4. Resists oil and water action.
5. Does not shrink, crack or bulge.

K&M Ebonized Asbestos is made of a combination of asbestos fibre, binding cement and insulating compound, molded under terrific pressure into strong monolithic sheets. Comes in standard or special "panel" finish . . . from $\frac{1}{8}$ " to 4" thick.

Not only does K&M Ebonized Asbestos meet exacting requirements for electrical switchboards, but it is ideal for bus bar runs, testing tables, cabinets, bench boards, compartment linings and many other types of electrical installations.

K&M Ebonized Asbestos is specially developed to meet the technical requirements of Underwriters Laboratories, Inc. when built into an assembled unit.

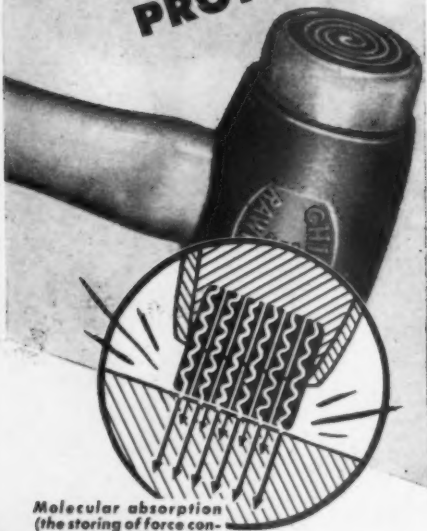
Nature made Asbestos . . . Keasbey & Mattison
has been making it serve mankind since 1873.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA



"molecular
absorption"

Rawhide
PROTECTS



Molecular absorption
(the storing of force con-
veyed through the tough
interwoven, resilient
hide fibres) converts
velocity into effective
thrust.

By momentarily storing the force of a blow and "slowing the punch," the coiled and compressed rawhide in C/R Hammers and Mallets (1st) takes the shattering crash out of powerful blows . . . prevents breaking, disfiguring or marring of products, machines and fine finishes. (2nd) eliminates recoil—ends the fatiguing bounce common to most mallets.

With a C/R Hammer you can use a lighter tool, still strike harder and more effectively; can accomplish more with less fatigue; because striking force is mono-directional with more carry through.

WRITE FOR
CATALOG SHEETS



CHICAGO Rawhide MFG. CO.
1294 ELSTON AVE. ★ CHICAGO 22, ILLINOIS

F.O.B. Philosophy of buying

WE haven't the faintest idea what Uranium-235 may cost, and presume that this information is still in the realm of military secrecy and technical speculation. But we ran across a tabulation the other day that bears all the earmarks of originating in the office of a far-sighted purchasing agent contemplating the atomic age. According to these figures, assuming that U-235 could be brought down to a price of \$10,000 per pound, it would be competitive as an energy source with:

Coal at \$6.67 per ton
Fuel oil at 4¢ per gallon
City gas at 13¢ per M cu. ft.
Natural gas at 25¢ per M cu. ft.
Gasoline at 4¢ per gallon

CUYAHOGA County P. A. Leslie Monroe placed an order recently for sheets and pillow cases at the prevailing ceiling prices of \$16.38 and \$3.98 per dozen respectively. In checking the invoice, he ran across the following interesting clause:

"Due to a contemplated price increase which may be permitted by OPA, not to exceed 8 per cent, it is understood the purchaser agrees to pay this increase over our present ceiling price stipulated above, if and when this increase is granted by the OPA even though the merchandise has been delivered and invoiced."

OPA Price Officer W. G. Spiegle opines that the vendor is within his rights in making this stipulation, that dealers are permitted to include a contingent clause in a sale to cover any increases contemplated for the near future. According to the press report, he does not consider this a scheme to circumvent price ceilings. If it were not done, he is quoted, the flow of goods would bottleneck because dealers would hold back their goods and wait for the price increase. He does not say how long such a clause would remain valid. "If and when" is a pretty broad condition for a purchasing man to cope with, and it conjures up a vision of mounting contingent liabilities that may rise up at any future date to put a dent in the budget. Between renegotiations and such invoice clauses

we wonder what a price means, anyway. Meanwhile, the director of Sunny Acres Sanatorium wearily prepares to patch up his worn sheets once more; says they can't stand that process much longer.

IN similar vein, the N.A.P.A. *Bulletin* quotes an inquiry from a Service Procurement Officer:

"On 15 August we canceled all Govt. PO's. Two days later we send telegrams to every contractor to 'reinstate' the order. Then we cancel and then we reinstate. My question has been unanswered so far: How many times can I cancel an order before it is dead? Is it three strikes and out?"

Secretary Renard does not give the answer, but he aptly captions the query by putting it in the Make-Up-Your-Mind Department.

THE distinction of having the most palatial quarters of any purchasing department in these parts goes without contest to the Amtorg Trading Company, official purchasing agency for the Russian government. They have leased the Glen Cove, Long Island, estate of the late J. P. Morgan—a show place with 41 rooms and six acres of grounds—as a rest and recreation center for the purchasing staff. There seems to be an implication in this move that postwar purchasing is likely to be more hectic and exhausting than in war years.

FIVE years ago the City of Springfield, Mass., enacted an ordinance establishing a centralized purchasing department. It has worked pretty well up until a couple of months ago, when, as the result of an interdepartmental clash, City Solicitor Macaulay discovered that he couldn't make a ruling on the legal scope of authority and prerogative conferred under the ordinance. So now it's up before a special aldermanic committee for "clarification and revision", and the lawmakers reopen the ancient debate

NOVEMBER

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on whether purchasing agents exist to purchase.

MEANWHILE the Board of Supervisors for Los Angeles (Cal.) County, in more appreciative mood, have ordered a study on the advisability of changing Purchasing Agent J. W. Hughes' title to "Director of Purchasing and Stores."

PURCHASING problems keep the solons busy. The Indianapolis City Council has recently abolished the job of investigator for the City Purchasing Agent's office from the 1946 budget. While it lasted, it was apparently a two fisted assignment, for the late incumbent was a former Indianapolis police captain and one-time police chief at Miami, Florida.

ANOTHER office bowing out of the picture is that of the Petroleum Administration for War. And it is interesting to note that L. B. Holland, Director of Materials for District 2, PAW, in his official farewell statement made it a point to thank the Purchasing Agents Association of Tulsa, through its President, R. V. Stephens, for cooperation and assistance in carrying through the program.

FURTHER recognition comes from Seattle, where the Purchasing Agents Association of Washington has been named as a "primary participant" in the Post-Victory Product Survey conceived by the Seattle Advertising and Sales Club as a means of assisting Northwest industry in reconversion to peacetime production.

A COUPLE of long service records have recently been reported, deserving of particular notice and congratulations. John Geiger, Purchasing Agent for the Kellogg Switchboard & Supply Co., Chicago, has rounded out 45 years of service with that company, where he started as a cost clerk back in 1900. Ben Nichols, City Purchasing Agent at Tacoma, has a record of 35 years in the city's service, and has the further distinction of being the only man who has held the purchasing office, since he was the original appointee when the position was created by the present city charter in 1927. Neither Mr. Geiger nor Mr. Nichols are contemplating retirement because of the anniversaries.

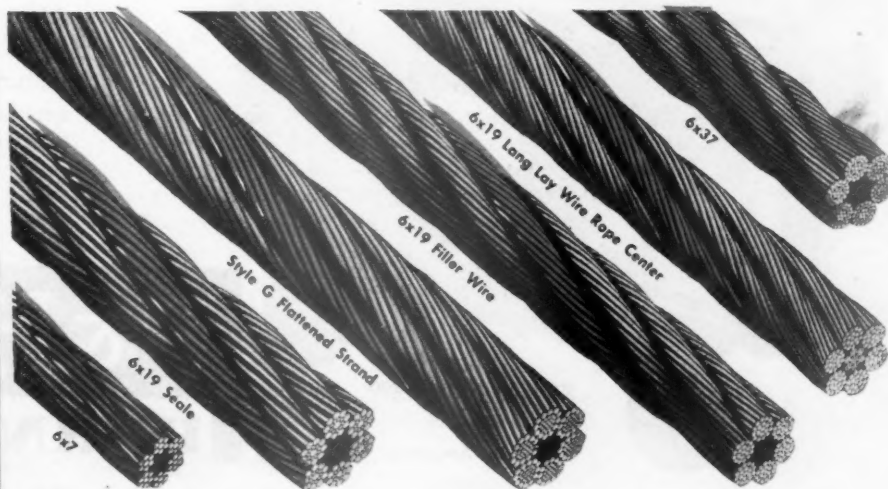
IT DIDN'T TAKE A WAR...



IT DIDN'T TAKE A WAR to establish world wide acceptance of "HERCULES" (Red Strand) Wire Rope... Its high tensile strength *plus* exceptional ability to withstand wear and fatigue, has long been recognized throughout the world.

There is a correct type and construction of "HERCULES" (Red Strand) Wire Rope for every heavy duty purpose, and its far flung use is due to its unwavering ability to give safe, dependable and economical service *anywhere*—on any job!

Feel free, always, to consult our Engineering Department on the use, care and application of wire rope.

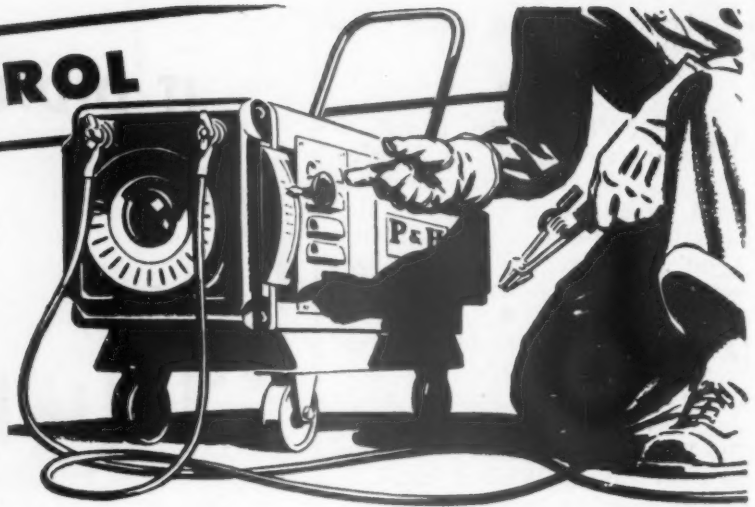


MADE ONLY BY		A. LESCHEN & SONS ROPE CO.	
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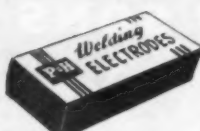
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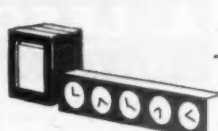
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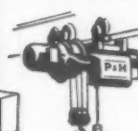
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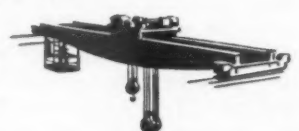
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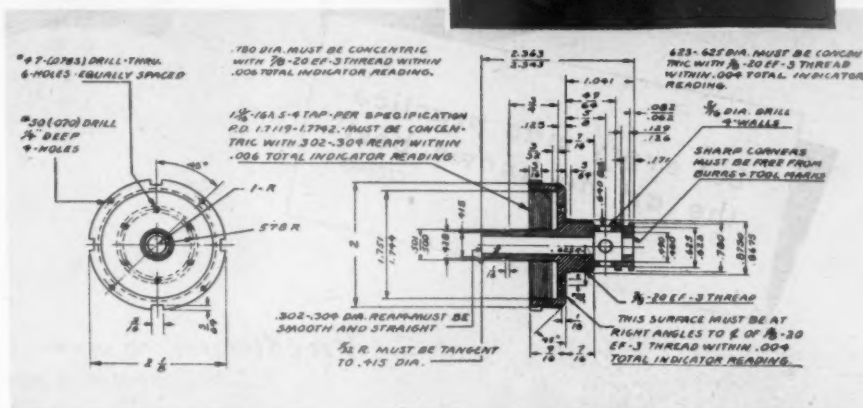
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Purchasing Previews



A Washington Report for Purchasing Agents

November 1, 1945.

SURPLUS DECLARATIONS INCREASING . . .

Declaration of surpluses by the military services is stepping up, with actual disposal lagging.

Basic problem is to cut the red tape created under the terms of the Surplus Property Act.

One step in this direction was the transfer of foreign disposal operating policy from the Army and Navy Liquidation Commission to the State Department. Foreign surpluses by law cannot be brought back to U.S. for liquidation. The Army and Navy ran into all types of problems when they went into action to sell the surpluses abroad. Some countries have definite laws which restrict such sales. There is also the tendency to "block" currency against the purchase of U.S. surplus goods.

The disposal of foreign surplus was in a static position when Office of War Mobilization Director John W. Snyder and Surplus Property Administrator Stuart Symington took a quick on-the-spot look at the European surplus problem.

On their return to this country, they made a quick change in the disposal set-up. The Army and Navy operating personnel engaged in surplus disposal will continue, but the horse-trading will be done by the State Department. This, it is hoped, will start the surplus abroad moving.

Surpluses on the U.S. markets are becoming embarrassing --especially in the matter of plant disposal.

Reconstruction Finance Corporation is seeking to move the new plants quickly to create labor markets.

Consumer goods surplus presents still another type of problem. The Surplus Property Act sets up various priorities which tend to keep goods off the market, rather than to expedite sales. The lag in selling has not yet begun to tax warehousing, and the Surplus Property Board approach is to cut selling red tape before the quantities of surplus pile up and become unmanageable.

One expedient has been a broad interpretation of the law by setting aside certain quantities of surplus to take care of priority purchases and sending the remainder to market.

The general thesis will be to avoid interfering with the marketing of new goods, and thus displacing labor. If there are squawks from special interest groups that have been by-passed, idea is to quiet them and keep on going.

CIVILIAN PRODUCTION ADMINISTRATION TAKES OVER . . .

Reconversion problems have been complicated by labor difficulties which have held up components and materials production. This introduces a new factor in the purchasing agents' problems of getting deliveries.

The labor-management difficulties have centered in large industrial cities, with a Committee for Economic Development survey showing that smaller cities and towns have proceeded with reconversion at a fast pace--with unemployment at a minimum.

Government's role in the material supply picture is fast fading. This has been punctuated by the dissolution of the War Production Board--and the creation of the Civilian Production Administration. The CPA remains as a holding company to liquidate the few administrative controls which are to be continued.

The CPA will continue to issue priorities ratings to aid civilian production on a highly selective basis, and will place emphasis on keeping the lid on inventories of scarce materials by seeking out violators.

The many divisions of WPB have been scaled down to five bureaus---(1) Industrial Reconversion Operations, (2) Reconversion Priorities, (3) Field Operations, (4) International supply, and (5) Demobilization.

WALLACE READY TO TAKE OVER . . .

With war agencies relinquishing their administrative functions over industry, Secretary of Commerce Henry A. Wallace has unveiled his plans to establish the Bureau of Foreign and Domestic Commerce as a live-wire service agency for business.

Crux of the Wallace plan is to provide smaller industry with the same laboratory and developmental techniques as are available to large industrial operations.

The Bureau of Standards would be expanded to give industry the benefit of new discoveries and techniques. At the same time, the Bureau of Foreign and Domestic Commerce would guide business in management, distribution, accounting and sales techniques.

Another arm in the Wallace program is the expansion of the Census so that more frequent and accurate information will be available to industry. This would also aid Government in anticipating the extent to which public works will be required to provide employment.

WAGE BOOST HELD CERTAINTY . . .

Divorcement of Government from its controls over industry has been quick and relatively thorough, with the one major exception of control over prices.

It is generally indicated that the level of wages will be permitted to rise---a minimum of 10 percent. Industry has maintained that this would mean an increase in costs of consumer durable goods, and of practically all commodities.

OPA position is that technological advancement will tend to absorb the increase in wage rates, by cutting down the man-hours required for each unit of production.

CONTRACT SETTLEMENT SCORE . . .

End-of-year forecast is to the effect that 70 percent of all war contracts will have been settled before the new year. This tally applies to the number of contracts---not to the dollar value.

Big dollar volume accumulates in the remainder of the unsettled contracts, where problems of settling sub-contractor claims and the involved nature of the charges have blocked quick settlement.

BUYING GERMAN PRODUCTS . . .

Allied Control Commission is interested in getting some index of the demand for the products of German manufacturers. Approach is not aimed at rebuilding German industry, but does recognize the need of getting some plants operating in the conquered territory.

The Commission is interested in getting information on the products, quantities, name of manufacturer who previously supplied the product, and an indication of whether the purchase is one shot or a continuing requirement.



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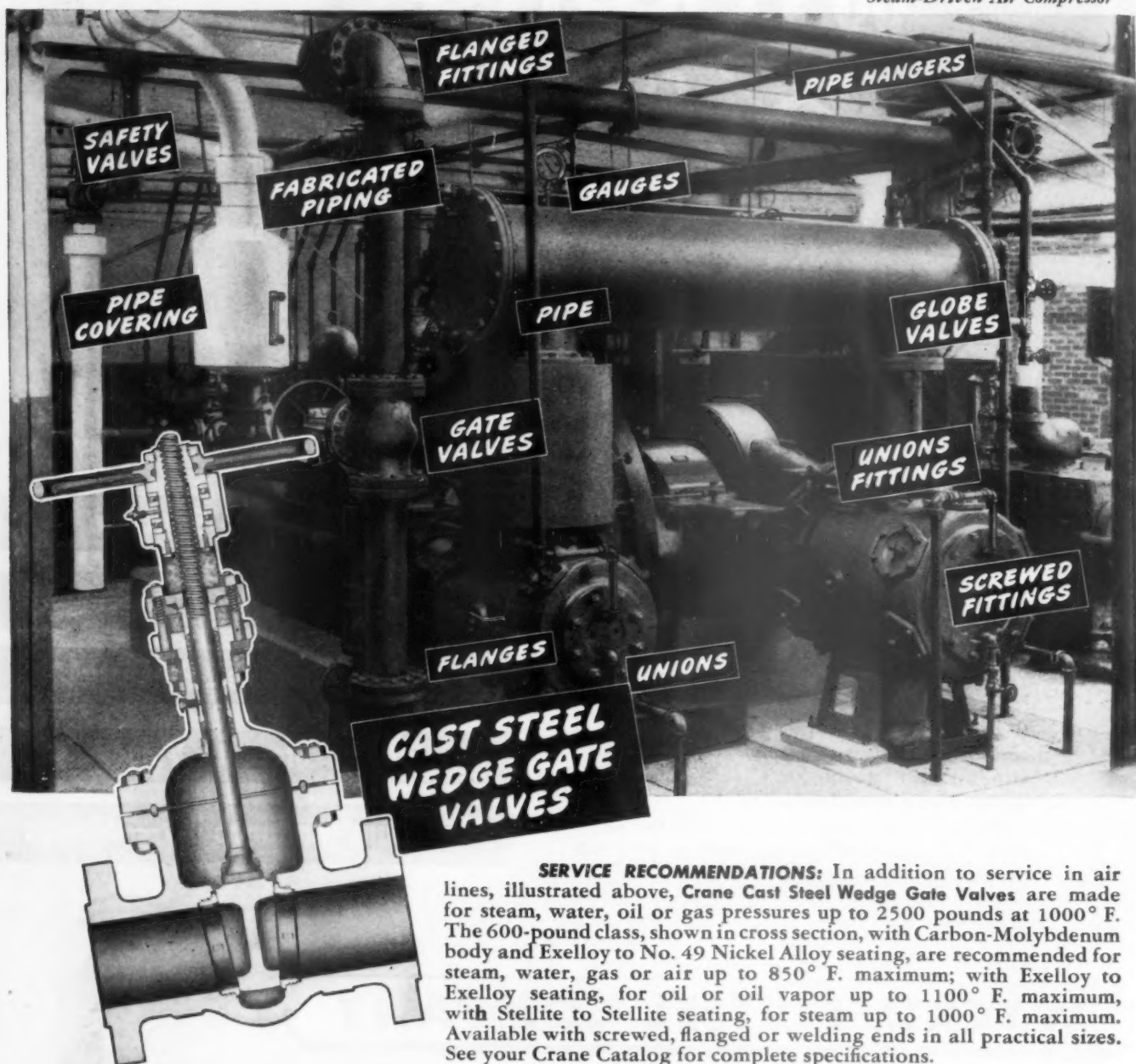
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bility—helps assure the best installation. By using Crane *complete* piping materials service, you speed deferred replacements—keep piping performance at its best. Below is an example of the completeness of the Crane line—in Cast Steel Wedge Gate Valves.

Steam-Driven Air Compressor



SERVICE RECOMMENDATIONS: In addition to service in air lines, illustrated above, Crane Cast Steel Wedge Gate Valves are made for steam, water, oil or gas pressures up to 2500 pounds at 1000° F. The 600-pound class, shown in cross section, with Carbon-Molybdenum body and Exelloy to No. 49 Nickel Alloy seating, are recommended for steam, water, gas or air up to 850° F. maximum; with Exelloy to Exelloy seating, for oil or oil vapor up to 1100° F. maximum, with Stellite to Stellite seating, for steam up to 1000° F. maximum. Available with screwed, flanged or welding ends in all practical sizes. See your Crane Catalog for complete specifications.

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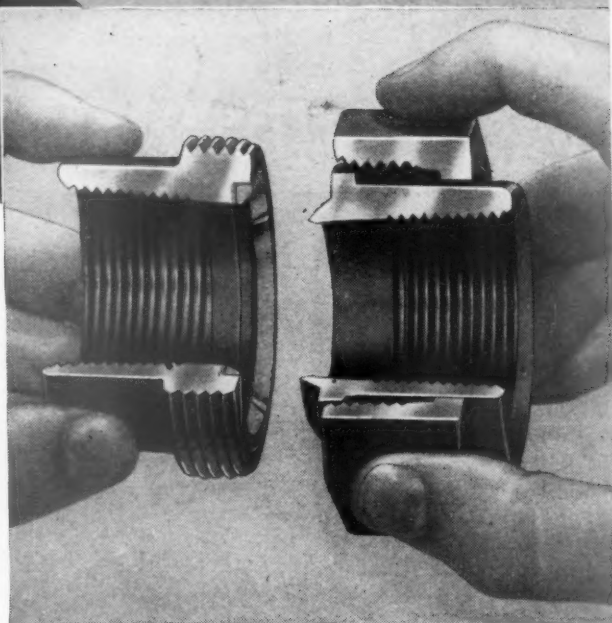
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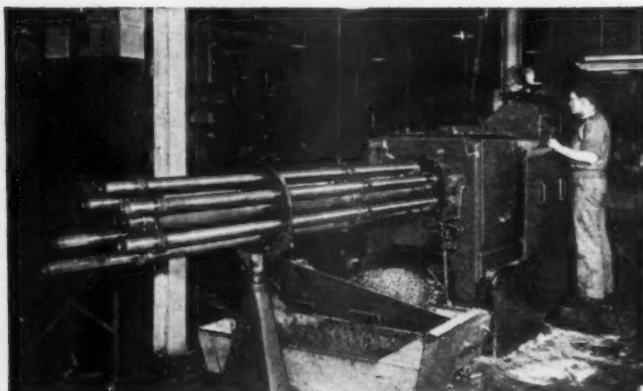
A

TIME LOST! Ordinary aluminum machining stocks produce long, spiral chips which curl around tool and machine, fouling moving parts and clogging feeder lines. A waste of operating and clean-up time. Alternative: use R317.

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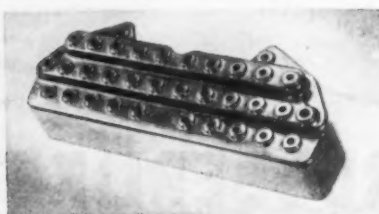
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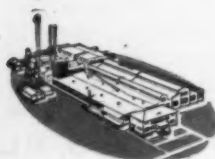


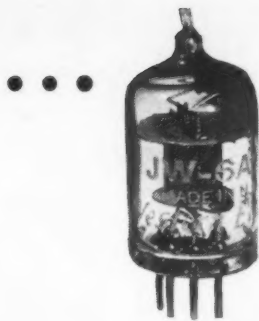
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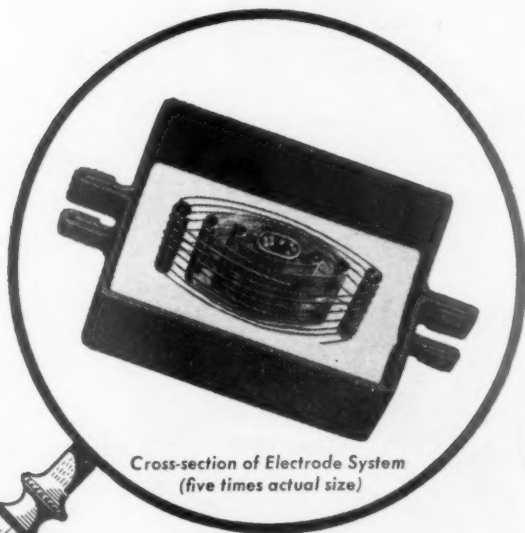


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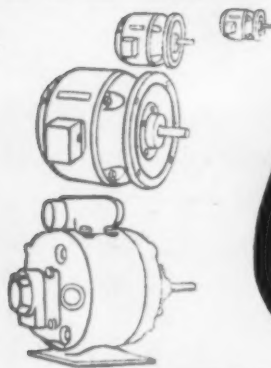
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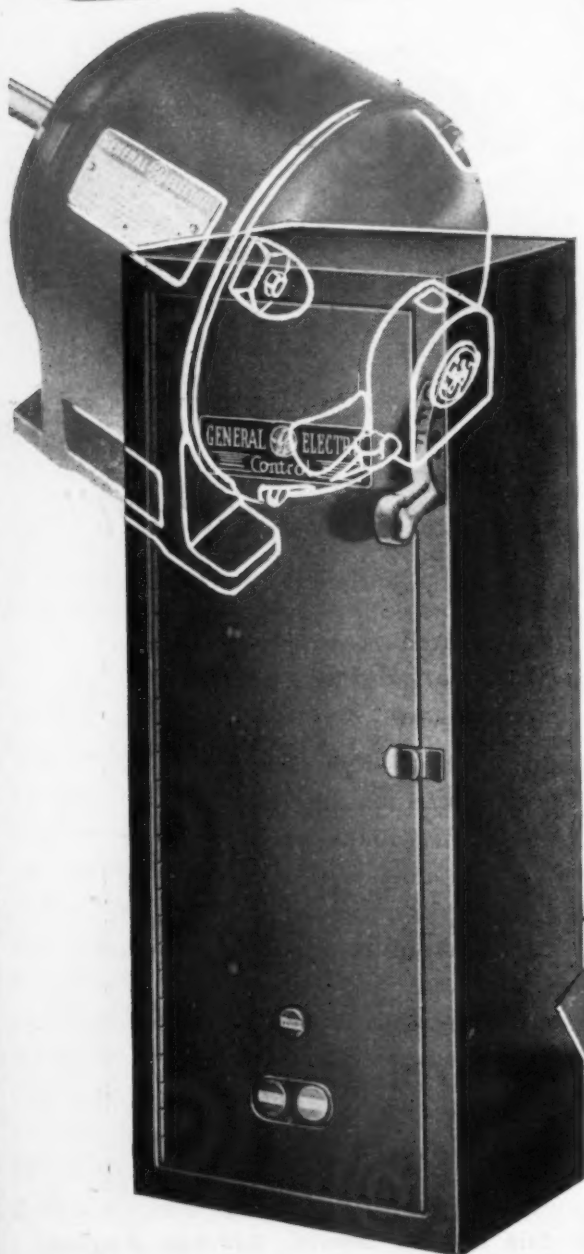
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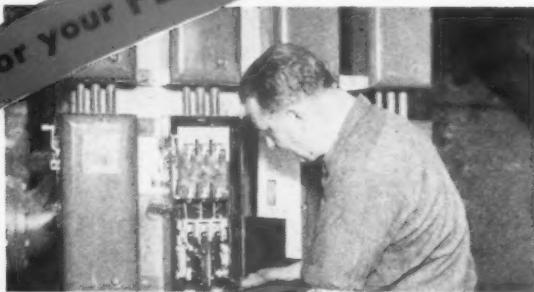


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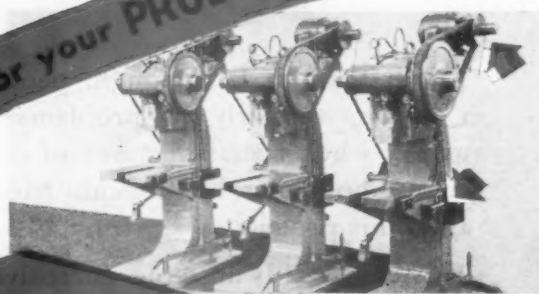
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NOVEMBER, 1945

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SQUEEZE PLAY

THE announced objectives of our national economic program — wartime wages or higher, and prewar product costs — seem to have been conceived quite independently of one another. Yet they must be correlated and brought into balance if we are to have a workable system. To do this requires a squeeze play of major proportions.

Certain answers have been proposed by the sponsors of the program. Technological progress is one of these. At present it is still an uncertain quantity, and peacetime applications have not yet been translated into important cost savings. Mass production economies on the expected large volume of business do not apply to all types of industry, and at best this factor is subject to the law of diminishing returns.

Currently the squeeze is directed at the distribution phase of business, and it is quite possible that some economies can be effected there, but scarcely enough to balance the equation. Already it is apparent that any significant paring of distribution margins can be done only at the expense of service and effectiveness. Since industry depends on healthy distribution to find an outlet for mass production, no impairment can be permitted there or the entire system falls. So in the end, the squeeze comes back to efficiency in the procurement and utilization of materials — to purchasing and production.

The purchasing agent is in a strategic position to test the possibilities of all these factors — to capitalize on new products and processes, to place orders most advantageously for his suppliers as well as for his own company, to insist on efficient production and distribution. The challenge is even more exacting than in wartime procurement, when cost was a secondary consideration. High government officials are already on record as placing on purchasing men the responsibility for preserving the competitive system and for preventing inflation. Now they have the further task of demonstrating whether our national goals represent a practicable working program.

Stuart F. Neimark

The Purchasing Agent

—HE, TOO, HAS SERVED WELL



Too frequently the accomplishments of Purchasing Agents and their staffs have been overlooked in discussions of American industrial might. In emphasizing production records, Purchasing achievements in providing raw materials often are omitted . . . in praising scientific and technical advances, the ingenuity of Purchasing men in locating and obtaining scarce products frequently is unnoticed.

Yes, through long hours of diligent, resourceful work, American industrial Purchasing Agents have turned in a superlative job. In paying tribute to them, Columbia renews its pledge of continued co-operation to its customers' Purchasing Agents and their staffs as they face today's new problems and responsibilities.

~

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HIGHLIGHTS

A brief summary of outstanding features
of timely interest and importance in this
issue, to conserve the time of busy readers



In the relatively few weeks since the first atomic bomb was dropped on Japan, millions of words have been written speculating on the future of atomic energy and its possible effects on industry. Most of these effects are many years distant. But meanwhile there are some very practical results immediately available as by-products of the research and development work already done, ready for release and application to current operations and products. **5,000 New Products and Processes**, on page 84, cites major achievements in this line and fields of application.

For many years before the war, our industry was dependent on **Pacific Supply Sources** for a variety of raw materials. War cut these supply lines, but they are being restored with remarkable speed. A. N. Weeksler's article on page 114 tells of this program and its progress toward relieving recent shortages.

Opinions differ on what should be done about **Price Control** now that the war is over. "Keep it," says OPA Administrator Chester Bowles. "Throw it out," says Dr. Harold G. Moulton, eminent head of the Brookings Institution. Turn to page 126 for their arguments.

What is a **Purchasing Agent**? The current interest in job classification has resulted in the development of some specific definitions of the buying function. You'll find some representative examples quoted on page 124.

An unusual and significant anniversary in the annals of purchasing was last month's observance of **Forty Years of Service** by the New England Purchasing Agents Association, pioneer organization in the buying field. The meeting is reported on page 110. And along with it is an analysis of what this movement, which started when seven purchasing men gathered around a table at the American House in Boston forty years ago, has meant to American business and to every buyer.



Much of the technical progress achieved in wartime will become available for civilian use only under patent protection. This poses a serious problem for the public purchasing officer who wishes to use such products but is required to buy on **Competitive Bids**. How to meet this situation by legislation and proper procedure is the subject of an article on page 133, by Nelson Rosenbaum.

Subcontracting played an important part in procurement policy during wartime. What will be the attitude of the purchasing agent and his management in the postwar period? An analysis of this situation, and a summary of the factors for and against peacetime subcontracting is presented on page 101.

The currently popular indoor sport of trying to undermine the purchasing agent and his function in industry, is given a novel and pseudo-scientific twist in the theory of CBI—the **Cycle of Buying Influence**. In the conviction that no such insidious slurs should be left unanswered, the article on page 89, under the same title, shows that the real cycle is one of cooperation to implement the distinctive functional responsibilities of each department, and that the function of buying rests with the purchasing executive and his staff. Here is a message of importance to buyer, marketer, and top management.

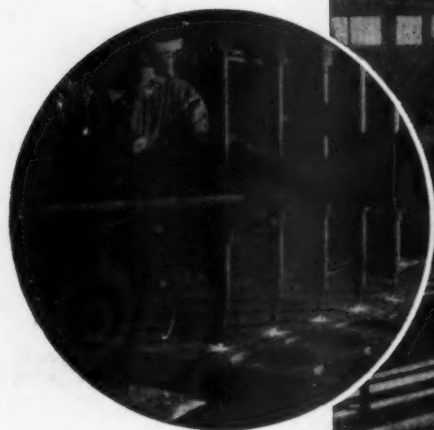


The light metals are destined to play an increasingly important part in postwar product design and manufacturing methods. Keep abreast of these developments. The article on **Lithium** (page 94) will be helpful.

Organic Finishes are another field in which the buyer has much to learn in order to make a proper selection and to purchase intelligently for best results. P. W. Prouty's article on page 118 tells of the experience of one well known company and the test methods developed there. A series of good photographs are included to illustrate the points brought out in the text.

More and more purchasing men are recognizing the fact that salesmen's first impressions of a company are formed in the **Reception Room**. And they are taking the opportunity of making those first impressions good ones. Turn to page 98 for a description and illustration of how five companies welcome the visiting salesmen.

Don't overlook these monthly departmental features compiled especially for purchasing men—the **Washington Letter** on page 63, with its timely and authoritative preview of official trends on matters affecting industry, as gathered by our Washington office; the listing of **Know-How Information**, that is yours for the asking, appearing on page 10; and the illustrated summary of **New Products and Ideas** that are now available for the industrial buyer (page 140), providing a quick and convenient means of keeping up to date on recent developments.



4 Things to Know About Steel

1. Where to Get the Steel You Need—The thousands of kinds, shapes and sizes of steel in eleven Ryerson Steel-Service plants are still the largest, most complete stocks available anywhere. This means that, despite shortages in some sizes, you can be more certain of getting the steel you need from Ryerson.

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RYERSON STEEL

THE purchasing profession has, during the past four years, been given the opportunity to use its specialized knowledge on a scope which never existed before, and the experience gained in these war years will stand it in good stead during the postwar period to come. The information and training we have gained, however, must be used judiciously as the period immediately ahead of us will require some reversals in our thinking.

The purchasing agent must alert himself to the many changes in buying and selling that will surely be present in this postwar business pattern. He must constantly keep himself aware of the many new developments in the manufacture of products he requires as well as weigh the advantages and disadvantages of the many new merchandising techniques that will be presented to him. The selling industry will be highly competitive and his actions must be geared to these changes in his own company as well as those with whom he deals.

He has been able during the war years to make many shortcuts and get the job done, but in the future his decisions must be tempered with the knowledge that the war is over and that he must conform to the new understanding of his purpose in the complex scheme of business. He must realize that he will be offered opportunities for service that will be profitable to his company, as well as products developed during the war that will reduce manufacturing costs and enable his company to have a sound place in this highly competitive economy. He must consider well his inventory position as, since all the resources of the country are now turned to the development of new ideas, he may find himself with a stock of material that is obsolete almost by the time he gets it in stock, and it is only by keeping in constant contact with his suppliers and other reliable sources of information that he will be able to properly administer his job.

I sound this note of warning: that the requirements of the purchasing profession now are more exacting than they were during the war and we must all remember that the experiences of the past are not necessarily a guide to the future and although the basic principles of purchasing will continue to prevail in our decisions, they must be tempered with the ever changing conditions existing now and in the days to come.

GREATER OPPORTUNITIES FOR Purchasing Service

The know-how of a seasoned purchasing department is going to be increasingly important to postwar industry, with a new understanding of the part that the alert purchasing executive can play in the complex scheme of modern business

By OWEN D. STORY

Manager, Purchases-Stores Division
Shell Oil Company

Houston, Texas



Mr. Story is currently serving as Vice President of the National Association of Purchasing Agents for District No. 2, comprising the associations at Dallas, Fort Worth, Houston, Oklahoma City, Tampico, Tulsa, and the Texas Panhandle.

5000

NEW

WAR'S GIFT TO PEACE

As a result of the inventive, scientific, industrial and engineering advances incident to work on the atomic bomb project, more than 5,000 new and improved products and procedures are now available to American industry, awaiting only Government release for volume production. Industry need not wait for atomic power to capitalize on these benefits. They are ready to be put to work today and tomorrow.



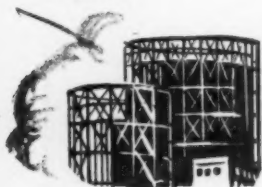
PETROLEUM & CHEMICAL INDUSTRIES

- Improved pumping
- More efficient heat exchangers
- Mass spectroscopy for continuous analytical control
- New methods of separating gas fractions
- Improved automatic control



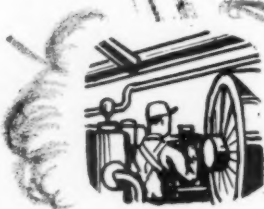
INDUSTRIES USING CORROSIVE CHEMICALS

- New pump and valve lubricants and packings
- New anti-corrosion treatment of metal surfaces
- Improved safety practices
- Completely enclosed pumps operated by induction



GAS PROCESSING INDUSTRIES

- Diffusional separation of helium from natural gas
- Efficient separation of hydrogen from process gases
- Diffusional separation of oxygen and rare gases from air
- New techniques in gas recycling



REFRIGERATION INDUSTRIES

- Increased safety in equipment
- Improved handling of fluorides for refrigerants



ELECTRICAL INDUSTRY

- New electronic techniques in high vacuum
- Improved micro-sensitive instrumentation

PRODUCTS and PROCEDURES



ALBERT L. BAKER

In charge of all engineering connected with the gas diffusion plant at Oak Ridge. General Manager of M. W. Kellogg Company's wartime subsidiary, The Kellex Corporation, a non-commercial industry-wide unit which mustered in its personnel a cross-section of the nation's most brilliant scientific and engineering talent loaned for the war emergency by many companies and universities.

Here's what we bought with the \$2,000,000,000 spent in research on the atomic bomb project.

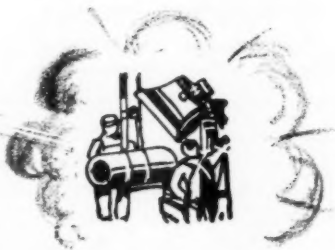
AMERICA spent an estimated two billion dollars on the research and development that culminated in the atomic bomb. From a purely military aspect, that money was exceedingly well spent. Total cost of the project actually represents eight days of war cost to the United States. If the war was shortened by just a week, the financial ledger would have been balanced; anything beyond that brief period represents sheer profit. According to the best military estimates, a minimum of another six months would have been required to achieve victory in the Pacific without this new and sensational weapon. On this basis, the actual saving in war cost is set at approximately forty-five billion dollars.

But this is only a small part of the benefits that may be expected to accrue. Many interesting predictions have been made on the possibilities of atomic power. To a large extent, these are in the realm of speculation and are many years

knowledge and technical procedure that is not dependent on the use of atomic power, but based on engineering principles, new equipment, and new methods developed as a necessary prerequisite of the atomic bomb—specifically resulting from the successful solution of the problems faced in separating U-235 from natural uranium by gaseous diffusion methods at the Oak Ridge plant.

The development work for this method had to be transformed from a highly theoretical concept, without even a laboratory process upon which to base design and performance data, into an efficient, multi-stage, commercial gas recycling process. So vast was the undertaking and so enormous the cost, that it is quite safe to state that no single corporation or group of corporations would even consider industrial research on this subject with such little assurance of success. The saying that "Necessity is the mother of invention" was never so true as in the new developments, both in apparatus and process, that were conceived, developed, and applied under the emergency of war to bring the project to a successful conclusion.

It is doubtful if such concentrated research was ever before brought to bear on any one problem. That it was solved quickly is a tribute to the ingenuity and resourcefulness of American science and engineering, and bodes well for future developments in this field. The total cost of merely separating the U-235 isotope by the diffusion process in important volume makes up a substantial portion of the overall figure. Mistakes were made, of course, because decisions had to be made quickly. But progress is not achieved without mistakes. The im-



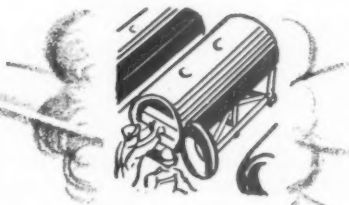
PRESSURE & VACUUM VESSELS

Checking welds
Pre-testing vessels for leaks before operation
Improved vacuum techniques



MEDICAL PROFESSION

Low cost, more abundant source of radioactivity
Improved methods of combatting toxicity in industry
Extension of cancer therapy



HIGH VACUUM INDUSTRIES

Improved methods for vitamin distillation
New methods of detecting high vacua in electronic tube manufacture
Low pressure — low temperature dehydration of food stuffs

away. Meanwhile, there is *immediately* available, as a by-product of enormous value, a wealth of new

★
A representative group of the scientists collaborating with the Kellogg Corporation on the diffusion process for volume production of Uranium-235, an essential ingredient in the atomic bomb project
★



DR. A. O. C. NIER
Obtained from the University of Minnesota, Serving as Division Engineer on Instrument Development. Pioneer in mass spectroscopy invention and earliest separation of U-235.



GEORGE W. WATTS
Chief Engineer, Standard Oil of Indiana. While with Kellogg he served as Division Engineer on Pumps and Instruments, and was responsible for Pump and Instrument Development.



DR. CLARENCE A. JOHNSON
Obtained from the M. W. Kellogg Company, Serving as Division Engineer on Barrier Development.



DR. M. BENEDICT
Obtained from the M. W. Kellogg Company, Serving as Division Engineer on Process Design.



DR. JUDSON SWEARINGEN
Obtained from the University of Texas, Serving as Division Engineer on Pump design. Responsible for seal research.

important point is that these mistakes were capitalized on, and now that it is all over, the vast sum of money spent can be considered not only as a necessary war expenditure or as a preliminary to developing superpower resources in the future, but also as our government's contribution toward the betterment of industry as a whole.

For there is no doubt about it, industry does not have to wait for atomic power to utilize the experience of the project. Many lessons have been learned which can and will be applied to more efficient processing immediately. It can not all be revealed in print at the moment, but it is in the minds of hundreds of technicians and firms who have participated in the project, and it will be inextricably bound up with their future thinking, engineering design, construction and processing. Meanwhile, there is tangible evidence of the direction of this

progress and its manifold impacts on industrial practice in the portion of the story that has been released. Some of the salient features of this development, and what they mean to industry, are cited below.

Corrosion Factors

Right from the start of the project staggering obstacles loomed. Uranium, being a solid, had first to be transformed into a gas for utility in the selected gas diffusion process. This meant selecting a compound of uranium with some other element which would be gaseous at nominal temperatures and from which elemental uranium could be readily regained after diffusion. After much experimentation, which included uranium hexafluoride and also other gases, suitable process gases were selected. One of the big advantages of this compound, which brought it into special consideration, was that fluorine, having only one isotope,

would not complicate the separation by adding new combinations which would diffuse at varying speeds. Uranium hexafluoride is a solid at room temperature but fortunately turns into a gas at 56 degrees centigrade. Unfortunately, however, like most fluorine compounds, it was highly reactive, physiologically poisonous, and introduced problems of corrosion which pointed toward difficulties in production and handling. In the words of one spokesman for the researchers: "Uranium hexafluoride is one of the hardest things to handle in the history of mankind."

It was found that practically all the techniques and developments gained in the successful study of the problem could be carried over into a number of industries plagued by corrosion factors, through improvement in equipment and processing. The results indicated a saving of millions of dollars annually



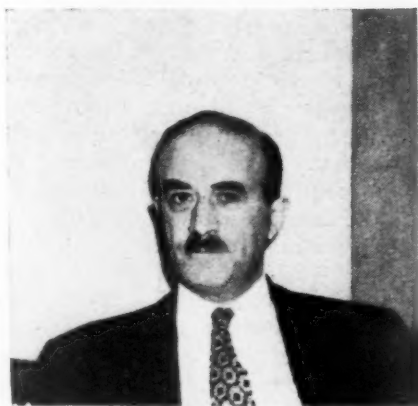
A. M. SQUIRES

Obtained from the M. W. Kellogg Company, Serving as Section Engineer on Process Design. Assistant to Dr. M. Benedict.



DR. HUGH S. TAYLOR

Dean of Graduate School, Princeton University. Assistant Director of S. A. M. Laboratory and in charge of barrier development.



DR. RALPH ROSEN

Obtained from the Standard Oil Development Co. Serving as Division Engineer on Special Chemicals.



J. H. ARNOLD

Obtained from the M. W. Kellogg Company, Serving as Director of Research and Development.

in the conservation of critical equipment and materials, minimum breakdown of moving parts and also increased safety for workers.

In the process it was imperative that no material in contact with the process gas react with it since such corrosion would lead not only to plugging of the microscopic pores of the diffusion barrier and various mechanical failures but also to absorption (i.e. virtual disappearance) of enriched U-235 isotope. Obviously, therefore, standard type valves and piping could not be used; instead, new methods of pre-treating metal surfaces against corrosion were worked out, new coolants, piping, new type heat exchangers, lubricants, pumps and packing were developed to satisfy the stringent requirements.

Industrial Applications

Hydrogen fluoride is an important isomerization and alkylation

catalyst in petroleum refining as well as an important raw material in the production of aluminum and refrigerants. It is, however, so highly active and dangerous that industry has not yet capitalized on many of its potentialities. Its handling may now be made safer and simpler without excessive maintenance costs, and as a result its increased use in industry may be realized.

Other important starting materials for a host of industrial products such as sulfur dioxide, hydrogen chloride and the mineral acids (sulfuric, nitric and phosphoric) have all presented severe problems of transfer and corrosion with particular emphasis on valve lubricants and pump packings. These difficulties can be greatly simplified by application of the knowledge gained through the extensive experimentation with UF₆ and the other related gases.

The story on pumps, the heart of

the process and one of its most difficult problems, is particularly interesting and applicable to modern industry. Thousands of pumps operating under reduced pressure at Oak Ridge created problems in vacuum technique on an unheard of scale. Other thousands operated at nominal pressures. But regardless of the type or service, none could leak or corrode and all had to have as small a volume as possible. Many different types of centrifugal blower pumps and syphon-sealed reciprocating pumps were tried out and new types developed. For example, one type of pump was completely enclosed, its centrifugal impeller and rotor being run from the outside by induction.

Top flight pump designers from leading manufacturers in this country collaborated in research at the central Kellogg laboratories in Jersey City and succeeded to a remarkable degree in increasing industry's knowledge of this all-important phase of processing. The engineers who participated in this phase of the project have brought to their parent companies a vastly increased lore of new techniques which cannot help but be reflected in increased service to their customers.

Perhaps the most significant advance in pump design which has been successfully accomplished is the utilization of supersonic velocities of a very high order (Mach. numbers of over 1.0).

Barrier Requirements

Literally acres of porous barriers were required for the gas diffusion plant with billions of holes smaller than 0.01 micron (about two millionths of an inch). Despite the high degree of porosity required, such barriers had to be able to withstand a pressure head of one atmosphere. The pores had to be of uniform size and spacing, must not become enlarged or plugged up as the result of direct corrosion or dust coming from corrosion elsewhere in the system, and the barriers had to be amenable to manufacture in large quantities and with uniform quality.

One of the major reasons for the lack of diffusion techniques in industry today has been the barrier problem. Almost at the last minute an excellent barrier was developed and today these operate successfully throughout the more than several thousand stages.

Diffusion Principles

Now that a large part of the basic research on diffusion barriers

and their application to full scale industrial separations has been completed, particularly with reference to gas recycling and instrumentation, it seems almost certain that helium will be separated from natural gas by diffusion techniques rather than by the present refrigeration method. Helium is so light in comparison to other components of natural gas that its diffusion velocity through a porous barrier is over twice as great as the next lightest compound present in the same source.

It may be even easier to isolate hydrogen by these new methods from a number of process gases now used merely as fuel because the diffusion velocity of hydrogen, the lightest of our elements, is over four times that of any compound associated with it.

The isolation of ethylene from cracked gas oil by incorporating diffusion barriers as an integral part of cracking units could conceivably supply an abundant source of this versatile chemical used for the manufacture of synthetic rubber, plastics, antifreeze, alcohol and many other products.

The preparation of oxygen and rare gases from air without resorting to refrigeration and fractional distillation is another possible application, when economic methods are developed.

The direct isolation of natural gasoline fractions from crude petroleum without resorting to distillation, and new types of fractionating columns for the petroleum refining industry also appear feasible.

Instrumentation

If pumping is the heart of processing, then instrumentation is the brain. No continuous process could function efficiently without adequate automatic control. In the gaseous diffusion plant the problems of instrumentation were far greater than in any other industry because the theory involved the assumption that diffusion took place through an infinite number of stages whereas practicability dictated that such stages be limited in number.

Even so, several thousand stages were required, necessitating an intricate system of gas recycling involving abnormally large volumes of gases in relation to the finished product and continuous high precision analytical control. About half of the gas processed in each stage diffused through the porous barrier as enriched U-235 product, and

after repressuring was sent on to the next higher stage for further concentration; the impoverished half was also repressured and recycled through the next lower stage. The recycling involved was enormous, over 100,000 times the volume of the final enriched gas.

There were developed to meet these needs the most precise, continuous, automatic, analytical control instruments ever produced by man. Instruments which before had existed only in research laboratories were improved upon and adapted to commercial use; completely new prototypes were conceived, developed and put into mass production. The result is that now as never before there is available to industry a more nearly perfect system of continuous automatic control than has ever existed.

Mass Spectroscope

One of the developments employed is a new type of mass spectroscope which every petroleum refiner will welcome for control of cracking operations and transfer line analysis. The mass spectroscope has been employed for several years in research laboratories and even within the last two years in certain phases of the refining industry but never on the perfected scale developed at Oak Ridge.

Security considerations are not violated in revealing that the mass spectroscope is an electronic device for analyzing gases both qualitatively and quantitatively from a mass standpoint by separating a beam of dissimilar gas molecules into separate beams according to their formula weight. Determinations are very fast, require only a thimbleful of gas, and make obsolete the formerly used Orsat and chemical analyses particularly for the purposes of continuous control where instantaneous changes must be effected the moment a process swings "off the line."

Its potential uses in industry include the accurate analysis of natural gas or any process gas, the continuous automatic control of any gaseous process such as alkylation, dehydrogenation, vapor phase cracking, etc., the checking of inert gases such as nitrogen used to provide a protective atmosphere in furnaces etc., the checking of the completeness of any evacuation process as in the manufacture of radio tubes, the detection of impurities, and many others. Industry will not have to wait for benefits from this

versatile tool because production facilities have been enormously increased since the new type was created.

Leak Detector

A second development, aptly and simply called "the leak detector" is more sensitive than any other existing device previously utilized for the same purpose. It played an important part in ensuring that all parts of the gaseous diffusion plant were vacuum tight.

The leak detector is well adapted for locating annoying leaks in industrial high vacuum processing industries such as vitamin manufacture where even microscopic leaks undetectable by the familiar ammonia-hydrogen chloride method or Tesla Coil method are still potent enough to prevent drawing the necessary high vacuum on the equipment. Other potential uses include the pre-testing of pressure and vacuum apparatus before putting it in service, checking equipment in operation to ensure no wasteful loss or contamination, the testing of welds for minute pores which would otherwise escape detection and ensuring the physiological safety of refrigeration equipment employing toxic coolants.

Of great interest to the petroleum refining industry is the development of a new type heat exchanger. Since an unavoidable concomitant to pumping gas is heating it and since enormous volumes of gas were processed, individual cooling units for each stage had to be developed. A brand new type of heat exchanger was conceived for this purpose and developed up to the production stage.

Medical Benefits

Thanks to the variety and multiplicity of radioactive products which can be produced by means of U-235, we face the prospect of soon having available for therapeutic medicine radioactive materials possessing a wide variety of properties. It is logical to expect, therefore, that these new materials will be suitable for products offering a greater range of usefulness, and at lower cost than radium.

The possibility exists of incorporating a micro quantity of a radioactive isotope in food to observe its metabolism in the body of experimental animals. Such "tagged" material could be readily traced in its passage through the organs of the body.



By STUART F. HEINRITZ

The CYCLE of Buying Influence

THANKS to one of our esteemed contemporaries in the field of business journalism, we have recently been introduced to a new term in the vocabulary of industrial purchasing (as seen from the outside) —the Cycle of Buying Influence. As we first ran across the phrase, it was casually abbreviated as CBI, conveying the uncomfortable impression that it was something with which we should have long been familiar, like FBI, or OPA, or COD. Reading on, we felt a little better to discover that CBI is an "exclusive formula" developed by Huebner Publications (HP) of Cleveland 6, Ohio.

Having some knowledge of the better known cycles that affect industrial purchasing — the economic cycle, the production cycle, the procurement cycle, *et al* — we hastened to fill this gaping void in our cyclical lore. CBI, it seems, concerns "the executives upon whose decisions the purchasing agent acts . . . the one, two, three, four or more men in each plant, depending on its size, *certified as influencing the issuance of purchase orders.*" (The italics in this

quotation are merely a few we happened to have around.) In other words CBI is the modernistic way of expressing that ancient and persistent theory of marketing which holds that purchasing is a side-line avocation of just about every one in the organization except the purchasing department. A generation ago, the same smart phrase-makers would have expressed the idea by

A new angle on the ancient theme that everybody but the purchasing agent decides what and where to buy

The greatest influence of all is intelligent, informed salesmanship

paraphrasing a then popular song: "Everybody buys but p.a."

The identity of these "all-important men in the Cycle of Buying Influence" is left rather vague. Presumably this vital information is protected in HP's "exclusive formula". There is a clue, however, in the accompanying illustration. It shows a trail of very black footprints (as though the driveway leading to

the back door of the plant had been freshly oiled) disappearing through a doorway labelled "Chief Engineer". The emphasis in this treatise on CBI is altogether on getting *IN*. The word is printed in oversize bold-face italics underlined. Whatever may come out of that door is material for another chapter.

Now it is no trade secret that the industrial operation, of which purchasing is a part, is a cooperative undertaking in any well coordinated organization. Design, production, purchasing and sales departments are all working toward one common goal of making a salable product and disposing of it at a profit; they do not go their separate ways. Purchasing agents don't spend millions of industry's dollars capriciously or arbitrarily, just because it's fun to buy with other people's money or for the sheer hell of it, like the blind horse that kept running into stone walls. They buy to implement a manufacturing program that involves specific needs for materials, equipment and supplies, and to keep these material costs within bounds that will assure an outlet for the finished product.

The Cycle of Business

No one of these departments alone is responsible for the profit of the operation, but each of them must make its proper contribution to the end result, whether in lowered cost, or greater volume, or better value, or wider margins. Very frequently there has to be a compromise. Purchasing must be willing to pay a little more for higher quality if that cost is offset by production economies, and production must be willing to take on an extra shop operation if the cost of materials involved is substantially lower, always provided that the balance is on the right side of the ledger. Design and sales must get together to decide whether it's more profitable to cultivate the Tiffany trade, selling a few units at a handsome margin, or the Woolworth trade, moving millions of units at a penny margin. The net results are what count.

Of course the purchasing program is predicated on the manufacturing program, and on product design, and on sales quotas—and on a lot of other factors that have very little connection with any of the three. The cyclical figure of speech is well chosen: there would be no sales without the production of things to sell, no production without procurement of the materials that go

into the product, no procurement without a bill of materials drawn off from product design, no design without market-wise distribution, no sales without production, etc., etc., etc. This is not a vicious circle; it is simply the smooth rotation of the wheels of industry, the process that keeps our business economy alive and functioning. Which is the most important step in this sequence? Which is the lead horse on the merry-go-round?

The Purchasing Function

No purchasing decision is made without a consideration of all these factors—nor is any decision of production or of design. They must all be coordinated and synchronized if the system is to work. From this viewpoint there can be no basic quarrel with the thesis that Buying Influence, whether cyclical or not, does exist. Of course that doesn't answer the question of who makes the decisions. There's quite a difference between the data on which decisions are based and the decisions themselves. Interpreting that data and translating it into terms of a sound and efficient procurement program is a function in itself, requiring special skills and more than a passing knowledge of what is going on in the great world of economics, technology, politics and competitive industry outside the buyer's own plant. Among other things, it requires perspective, that the data and the decision may not become confused in the company's thinking, to the detriment of sound procurement. That is one of the reasons why modern management has seen fit to set up special purchasing departments "in nearly every significant plant in America."

Management Criticized

A dozen years ago, one of the classic surveys on this subject, forerunner of CBI, made rather an extensive study leading to the conclusion (if memory serves accurately) that 3.2 persons have some "influence" in the purchase of a simple item like a paper clip, and some 14.2 persons in the case of a more intricate purchase such as a power plant. That's data. The difficulty, and the fallacy, arise when the researchers (or certifiers, to use the modern term) assume or try to prove that the purchasing agent represents the 0.2 of a person included in these totals.

That type of reasoning is not so much a derogation of purchasing as

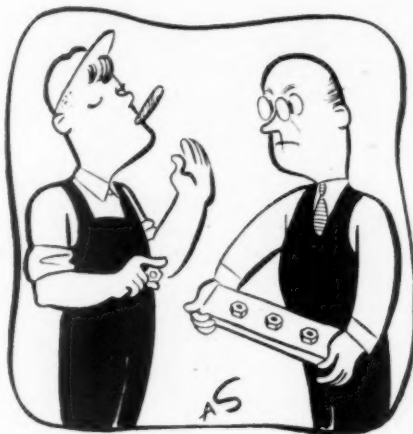
it is of management, which has set up centralized purchasing departments in more than 12,000 major plants in this country to do this specific job, and annually spends an amount equivalent to from 1% to 2% of total purchases to maintain them.



Surely management expects the purchasing department to do its job in return for this substantial budget expenditure, and the job obviously is to purchase. If purchasing were one gigantic swindle against management, some one would have been smart enough to discover that fact in the thirty-odd years since centralized purchasing was first invited to pull up a chair at the management table. Instead, this function has experienced a steady, solid, and at times spectacular growth in influence and service during this period, and the upward curve is accelerating. The reason is simple. When management got around to breaking down its cost figures, it was found that purchased materials account for from 30% to 80% of product cost—an overall average for all industry, according to the U. S. Department of Commerce, of 58 cents of the manufacturing dollar, or more than all other factors combined. That calls for skilled and specialized administration of purchases; it's too vital a factor to be handled on a side-line basis. Sixty-one universities and colleges of business administration today include courses on purchasing in their management curriculum, not only to train purchasing executives, but to impress the managers of tomorrow's industry with the importance of the function and the necessity of giving proper attention to procurement.

Of course it can be argued that 1% or even 2% is peanuts compared with the salesman's 10% commis-

sion or the even higher total cost of distribution. The only significance in that comparison is that distribution has a much lower efficiency rating than procurement. And one reason for this discrepancy is that distribution—industrial distribution



in particular—dissipates a large part of its energy and time in pursuing the tenuous trails of purchasing influence while the main chance—purchasing decision—is neglected.

Buyers Buy

What CBI and its many counterparts in marketing theory and propaganda fail to realize, when they insist that functional titles really don't mean what they say, is that the division of general management into various fields of functional responsibility didn't stop with the simple threefold pattern of production, sales, and finance—or at any other given point that suits their argument. That early division was only a beginning; the process is a continuous one. Centralized purchasing derives its charter and authority by exactly the same process and logic that produced the production department, the sales department, the engineering department, the accounting department, the advertising department, and all the rest. Somewhere along the line, the owner-manager decided that he couldn't play all the instruments in the band himself, and that the business would run more efficiently if he delegated certain fields of responsibility to department heads. It worked, and as the business grew the process was repeated into even more specialized—and restricted—fields of responsibility. The result has also been used as the organization pattern for those modern corporations that spring into being full-grown, like Athena,

as adult members of the big business family.

An analysis of organization among the 9,252 member companies of the National Association of Purchasing Agents, which includes rather a large proportion of the "significant plants" in America, indicates that in more than 70% of the organizations where centralized purchasing departments have been established, the divorce from production has been complete. In seven cases out of ten, the purchasing agent is directly responsible to top management, without reporting through any production official or "acting on the decisions" of any other department. The percentage goes up to 73% among the companies operating scattered plants.

Under this arrangement, management has the right to expect better purchasing because of specialized attention and skill, which add up to the know-how of procurement. At the same time, management has the right to expect better production and design when the executives of these departments devote themselves to producing and designing, applying the know-how of their respective crafts without the necessity of dabbling in the problems and intricacies of purchasing. That's the way functional organization works.

Knowledge of Materials

Now it is obvious that the proper exercise of both these functions—of working with materials and procuring materials—is predicated on a knowledge of materials, and that a common ground must be found. But this does not imply either a clash of interests or a specified line of authority. It is not a function of the purchasing agent to tell production what materials the latter wants and shall use. By the same token, it is not a function of production to tell purchasing where or from what source the materials are to be purchased—even by the indirection of expressing its wants by brand or source. It is not a question of who tells whom. Materials know-how is not the exclusive perquisite of either department. It happens that they approach the matter from two viewpoints, and it is not until these two viewpoints are put together, each with its characteristic know-how of use and procurement respectively, that a proper buying decision can be made.

Production is legitimately concerned with having a material furnished that is known to be satisfactory for the desired purpose. To

define that material in terms of a single manufacturer's product serves production's end; it is the easy and the lazy way of describing a need, but unfortunately it usually displays a total ineptitude or disregard for good procurement practice in the interest of the company. The purchasing agent is just as much concerned with getting the proper material, acceptable to production. But he also knows that 99 44/100% of all the materials called for are available from several sources, competitively, equally satisfactory for the purpose, and offering various advantages of relative value. It is his responsibility to develop these several opportunities of alternative supply sources and to make the most advantageous selection, without any prejudice to the interest or prerogatives of those who are to use the materials. The fundamental difference in approach to this question of the knowledge of materials is that production seeks a satisfactory material, whereas the responsibility of purchasing starts at that point and is not fulfilled until all satisfactory materials are found and evaluated.

Profits from Purchasing

Here's an actual case history. A few years back, an eastern instrument manufacturer was consistently losing out on some big business because costs were too high. Engineering and production ingenuity trimmed what they could, but it wasn't enough. As for materials, they knew what they wanted in no uncertain terms. One of the major components was a cuprous alloy wire, specified by brand and bought on sample from the sole producer of that brand, at his price. There was no doubt that the wire was right for the job. The purchasing agent conceded that point without argument, but he wasn't convinced that it was the *only* wire that would be right. "Forget the brand name and put your requirements in the form of a quality specification," he urged. "Then let me see what I can do."

With some misgivings, the engineers spelled out exactly what the wire must be and do, and the purchasing agent took to the road. Within a week he was back, having located several thoroughly reliable suppliers for a practically identical product, completely satisfactory to the engineers, meeting every test, and at a cost saving that ran into thousands of dollars on the quantities required. If that saving alone were considered, it would have represented a major purchasing accom-

plishment. But the buyer's contribution in this case was not to be measured in mere thousands, for over the next two years this one instance of elementary competence in purchasing meant the difference to his company of landing upwards of three million dollars' worth of business that would have gone to a competitor if the "buying influence" of the engineers had been permitted to prevail. There's know-how in purchasing, too, and production and management owe it to themselves to get the full benefit of purchasing skill by the simple expedient of letting the buyer buy. That's why purchasing departments were born.

If that were an isolated or extraordinary experience, it would not be worth recounting here. But it is typical of a situation that recurs every day somewhere in business, in both the first and the later phase, according to the extent of "buying influence" that is brought to bear. Prudent management would do well to examine the procedure in its own organization. It might prove an enlightening exercise to estimate how much this "influence" is costing the company in higher costs, lost opportunities, and lost business; or it might lead to a fuller appreciation of the potentialities and accomplishments of skillful purchasing, backed by a policy of sound cooperation with other departments.

What is the influence that production and engineering executives legitimately have on buying decisions? (1) A full statement of their needs, as far in advance of the actual need as possible so as to give purchasing the time and opportunity to exercise its functions of research and comparison of available sources. (2) A clear definition of those requirements in measurable terms of quality and performance that do not restrict the buyer's choice. (3) A frank statement of any particular preference they may have, with a reasonable explanation thereof, so that this may be given due consideration as a buying factor. (4) A prompt and fair trial of alternative products or materials found or developed by purchasing, so as to broaden the base of the procurement program without compromise as to quality. (5) Encouragement of full acceptance of such alternative products by the men who have to work with them, once they have been adjudged satisfactory. (6) Cooperative counsel on all problems of mutual interest, where technical and plant know-how may be coordinated with procurement know-how for the best decision and final result, without prejudicing the buyer's position in negotiation. (7) A strict hands-off policy in respect to the purchasing agent's prerogatives and responsibilities of selecting the source, ar-

ranging the commercial terms of the transaction, and serving as the point of contact with the vendor.

The Buyer's Code

Naturally the two departments will work together. The purchasing agent would be short-sighted indeed, and remiss in his obligation, if he failed to take advantage of the knowledge and facilities of other departments in his organization that might aid him in making the best possible selection. That point is so well recognized, and its importance so thoroughly established, that it ranks as No. 2 in the "ten commandments" of purchasing—the statement of Principles and Standards of Purchasing Practice adopted by the National Association of Purchasing Agents. In this creed, the second item reads:

To be receptive to competent counsel from his colleagues and to be guided by such counsel without impairing the dignity and responsibility of his office.

There is no ambiguity about this statement. It not only concedes "buying influence"; it invites such influence, but without delegating or abdicating any of the purchasing agent's responsibility—or authority—for procuring materials that will satisfy the need. It seeks advice, not alibis; counsel, not instructions. Put into practical, everyday terms, it means that the salesman can make contact and "get in" to see the appropriate plant executives whenever there is any legitimate purpose to be served, by doing so, and that this contact is just as likely to come at the suggestion of the purchasing agent as from the salesman himself. It means that such contacts are made under the best possible auspices, through the front door of the purchasing office and not by way of the tarry driveway to the plant entrance. It means that user, buyer, and salesman will confer upon a common objective instead of setting up opposing strains within the relationships involved.

Marketers who declaim most loudly against such a procedure, and who chafe at the common-sense regulation in many companies where those who call on a sales mission are automatically directed to the purchasing department regardless of whom they may ask to see, usually are those who have never tried it. They have never taken the trouble to consider a sale in the light of a purchase, which is merely another viewpoint—the cus-



tomer's viewpoint—on the selfsame transaction. If they would put themselves momentarily in the buyer's position and consider the psychology of the purchasing man (which is ordinary human psychology in any conscientious search for truth and value), two points would be self-evident: (1) That the purchasing agent is frequently in need of expert assistance in selling his plant associates on the desirability of a product that seems to have good possibilities for his company. (2) That when sales pressure is indirectly applied it suggests that everything is not as honest and straightforward as it might be, raising the natural question, "Why don't you speak for yourself, John?"

Prejudice in Buying

It would be manifestly unfair to lift a single sentence, like the above citation, out of its context. Let us therefore go on to the third item of the buyers' creed:

To buy without prejudice, seeking to obtain the maximum ultimate value for each dollar of expenditure.

According to this precept, the purchasing agent should not be prejudiced against a product by the sales irregularity of flouting his position. Granted. Granted also that the pious admonition about turning the other cheek is one of the most difficult ethical rules to follow. But before we leave the subject on this lofty philosophic plane, let's examine the statement a little more closely. Prejudice—literally meaning "pre-judgment"—is exactly what occurs when a buyer is handed a ready-made decision restricting him to one product and one source of supply. By his own standards of professional practice, he is bound to reject such a decision, at least until such time as he may confirm it through his own research and analysis.

Furthermore, it is well known that there is no spot in the entire organization more fertile of deep-seated prejudices than among the plant operatives who have been accustomed to working with certain tools and materials. More often than not, their magnificent and militant loyalty to traditional practice is born of the fear of a change, and the fact that a change may turn out to be for the better as well as for the worse does not alter their conservatism. Knowing but one product and what it will do, they damn all others by pre-judgment. How many plant tests have been deliber-

ately sabotaged by those fearing lest they should be asked to use some unfamiliar material? Against such prejudice, too, the purchasing agent must be on guard, in order that he may achieve his objective of maximum ultimate value.

Search for Knowledge

And let us go on another step, to item No. 4:

To strive consistently for knowledge of the materials and processes of manufacture.

The purchasing agent must seek a reliable basis of judgment at first hand. He is to receive counsel, as previously stated, but he cannot evade the responsibility for his decisions by unquestioning reliance upon the opinions of others. Much of his knowledge he will assuredly get from his colleagues in production and engineering, and much of it from those sales representatives who come to his office. Marketers may well ponder the relative impact of the direct and indirect methods, and question whether it is wholly wise to rely upon the good offices of plant men to pass along their story at second hand.

Incidentally, the constant search for knowledge is an article of the creed which production men can well subscribe to on their own behalf. Presumably this is a policy among any group of alert and progressive plant executives. We may here offer the gratuitous suggestion that one of their most fertile sources of such knowledge may be the purchasing department, whose particular business it is to maintain contacts with outside sources and to keep themselves informed concerning what is new and available to industry. Purchasing men are selective rather than avid coupon clippers, but one general characteristic of the breed is that pertinent information is kept on file in orderly fashion, in catalog and commodity files, against the day when some new need, or the need for an improvement may arise. It may astonish marketing experts who do the greater part of their research in their own imagination, but it is nevertheless a fact supported by studies of more than 1,200 representative industrial organizations, that the purchasing department has initiated suggestions leading to the use of new materials in 77.6% of these significant plants.

Straight-Line Selling

The most curious fact about the theory of the Cycle of Buying Influ-

ence is that it omits the one most potent influence of all—and that is the influence of the well-informed salesman himself, calling on the man who buys. The purchasing agent's door is open. A big part of his job is to see and interview salesmen, to learn from them, and to be convinced of the merits and values inherent in what they have to offer. We may quote at this point another clause from his creed:

To accord a prompt and courteous reception, so far as conditions will permit, to all who call on a legitimate business mission.

The majority of industrial salesmen who have been on the job long enough to know how sales and purchases are made, are keenly aware of this and make it their business to put the story before the purchasing executive. Our argument is not with the way business is done, but with the false philosophy which would detour them furtively past his office into the vast No Man's Land of distribution, where requisitions are won and orders are lost.

The other day we watched a high school football game and saw the backfield go into a huddle and devise an elaborate play while the center bent over the ball. When the signal was called, the backs dashed off purposefully while an opposing end circled around and took the pass from center unmolested, for a score. Too often, a comparable situation arises in industrial selling. The elaborate trick plays, the schemes hatched out behind the back of the man whose function it is to make purchasing decisions, go sadly awry, but the man who keeps his eye on the ball and plays the game, carries off the prize.

In all the Cycle of Buying Influence, the most potent factor is good, straightforward salesmanship, intelligently directed to the purchasing agent at the point of sale.

Because of the extraordinary demand for extra copies of the article "Getting Past the Purchasing Agent", from our September issue, a second reprint of this article has been prepared. Many purchasing executives are placing these reprints on their reception room tables for the attention of business callers. If you can use additional copies, we shall be glad to furnish them without charge, upon request.

LITHIUM...

War and Postwar Uses

The lightest of all the metals promises to serve a variety of useful purposes in its post-war application to industrial needs

LITHIUM is a soft, silvery metal, about half as heavy as water. It is the lightest in weight of all metals, in fact, of all solid bodies, and is one of the most active of all the elements. Lithium never occurs in the free state in the nature. It is always locked up by other elements.

Sources of Lithium

Minerals containing lithium are distributed throughout the world in the earth's crust. Lithium occurs more abundantly than tin, lead, or zinc. There are also sizeable quantities of lithium salts dissolved in spring waters.

Principal commercially workable American lithium mineral deposits are in South Dakota and North Carolina. Spodumene, an ore containing lithium, aluminum, silicon and oxygen, is mined in these localities and lithium metal is obtained from it by a series of physical, chemical and electrolytic processes. The lithium content of the workable spodumene deposits varies from 1.4 to 3.3%. Spodumene yields most of the commercial lithium products.

Lepidolite, an ore containing lithium, potassium, aluminum, fluorine, silicon, oxygen and hydrogen, is another source of lithium. It has a lithium content of from 0.7 to 2.8%. The main commercial deposits of

this ore are in North Dakota, New Mexico, Colorado, and California.

The remaining important source of lithium, now potentially much greater than before this war, is the brines of Searles Lake, San Bernardino, California. Lithium is combined with sodium, phosphorous and oxygen, to form one of the many salt deposits in this lake, which is practically all solid salt, with an infrequent shallow covering of water. The lithium salt obtainable there contains over 10% of lithium.

Other ores capable of yielding lithium include amblygonite, kryolithionite, petalite, triphylite and zinnwaldite.

Some mineral deposits containing lithium, not commercially exploited at present, occur in New Mexico and Colorado and there are also deposits in Canada, South America, South Africa, Australia, Germany, Russia, Czechoslovakia, Sweden, Spain and the island of Elba.

Discovery and Development

A Swedish chemist, August Arfvedson, working in his crudely equipped laboratory in 1817, was puzzled when he tried to make a chemical analysis of a bit of ore which he had obtained from an iron mine at Uto. The mineral lost 4% in weight, on analysis, which he

could not account for. He repeated the careful analysis, with the same result.

Arfvedson was curious. He set about tracking down the difficulty. Soon he found he could convert part of the mineral into a sulfate. It was no ordinary sulfate like sodium sulfate or the sulfates of potassium or magnesium, because it did not behave like any of them. More curious than ever, he converted the sulfate into a carbonate.

When he tried to dissolve the carbonate in water, he found it was scarcely soluble. He correctly concluded that he had discovered the existence of a new alkali sulfate and that in that sulfate was a new material. Arfvedson had discovered one of the 92 chemical elements. It was lithium.

Another chemist, Vauquelin, had almost stumbled on the same discovery previously, in analyzing the same kind of mineral, petalite. Vauquelin had mistakenly decided the alkali element he found was sodium.





Continuous casting of
Lithium metal ingots.

Germans. It had the strength of mild steel, could be hot formed, and was called "Scleron." It was a valuable addition to the light alloy family, but failed to obtain wide acceptance after aluminum-zinc alloys of similar composition — whether or not they contained lithium — were found to develop cracks in service, of a type familiar in some grades of brass, known as "season cracking".

Dr. Hans Osborg, an American physical chemist and metallurgist of German birth and education, developed and built the first commercial process and plants for the electrolytic winning of lithium metal during the late 1920's and has since built two more plants. During all of this time, he has been engaged in the scientific and industrial development of improved production methods for lithium and its products, as well as of their applications. Dr. Osborg is vice president of the Lithalloys Cor-

Arfvedson christened his new element lithium, from a Greek word meaning "stone". This indicated its occurrence in minerals, in distinction to the alkali elements sodium and potassium, which at that time were believed to occur only in plants.

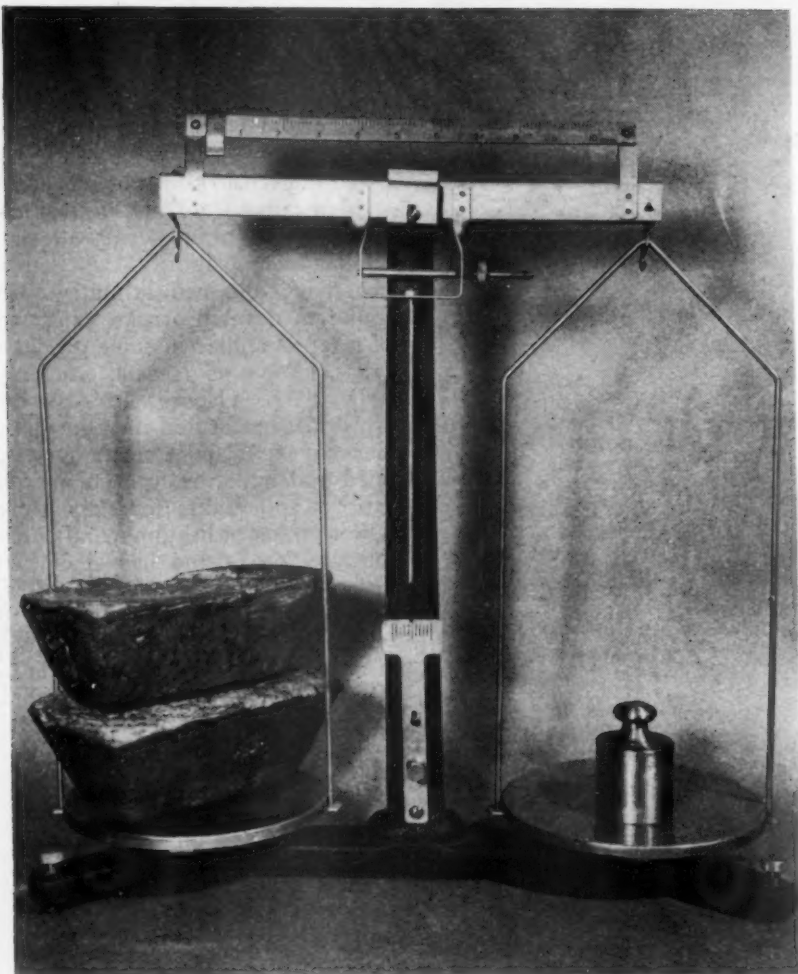
The discoverer of lithium never was able to isolate it in metallic form. In 1818, Sir Humphrey Davy, famed British scientist, produced the first metallic lithium. Using an electric current to decompose lithium oxide, he obtained small amounts of lithium and oxygen. A century passed, however, before commercial methods were developed to extract lithium from any of its compounds. It was not until after World War I that the many difficulties involved in the separation process were overcome. Lithium therefore may fairly be called a 20th century metal.

Since World War I

In World War I, an aluminum-zinc alloy containing about 0.1 per cent lithium was developed by the



Lithium Hydride Generator fills balloon quickly and safely with hydrogen. (Air-Sea Rescue)



Lithium metal is approximately 18 times lighter than brass.
A cubic foot weighs 33 lbs.

poration, a New York corporation, which is the world's largest producer of lithium metal, alloys and compounds. Plants are located in Brooklyn and Long Island City.

Dr. Osborg is recognized as the leading authority on lithium and is the author of several treatises and papers on the subject. Research scientists of the Bureau of Mines and several important commercial companies have made contributions to the large-scale production of lithium products and to their commercial uses. With adequate production facilities available for a great variety of lithium products, it seems likely that the number of scientific and industrial laboratories engaged in lithium research will grow still further in peacetime.

Size of Industry

The lithium industry is small in comparison with base metal industries, but its usefulness is measured by atoms instead of pounds, and it is growing rapidly. In 1929, about 2000 tons of lithium minerals and concentrates were shipped to con-

sumers. By 1944 the annual shipments of lithium minerals and concentrates reached 14,000 tons, a sevenfold increase in 15 years. Ever-widening uses for lithium metal, lithium alloys, and lithium compounds, relying on abundantly large deposits in this country, promise continuing expansion of this comparatively young industry.

Lithium in War Industry

World War II has been responsible for greatly accelerated lithium production and a series of new uses which have come about with breathtaking rapidity. Lithium played an important part in war industries.

Lithium's varied war jobs are mainly due to two characteristics. First, it is the lightest solid body. Second, it has the lowest atomic weight of any metal. More atoms of lithium can be packed in a given weight than those of any other metal.

A cubic foot of lithium weighs 33 pounds. The same volume of magnesium weighs 108 pounds, aluminum 176 pounds, iron 490 pounds and lead 701 pounds.

When lithium combines with other elements, it is the number of atoms rather than their weight which determines the effects produced in the compound.

Lithium now costs \$12.50 a pound, on government orders and commercially in quantities of 10,000 pounds and up. In smaller commercial quantities it still sells at its pre-war price range of \$15 to \$20 per pound. There is a prospect that post-war production will be large enough to justify price reduction to as low as \$5 a pound.

Lithium in comparison to base metals is quite economical in its commercial or industrial uses. The reason for this lies in the important fact that there are more atoms in a given weight of lithium than in any other metal and minute quantities of lithium suffice for big jobs.

Some of the jobs which lithium, as metal, alloy or in the form of its various compounds, performs in war industry are:

It removes gases and impurities in copper, tin and silicon bronzes, producing superior castings.

It removes final traces of nitrogen from other gases, such as helium and argon.

It is an essential compound in fluxes for welding aluminum in airplane construction and for making magnesium castings for airplane parts.

It makes possible the use of lighter weight storage batteries.

It enables human beings to live longer and more comfortably in confined quarters or closed compartments.

It enables lubricants to flow freely at extremely high and extremely low temperatures—in stratosphere airplane flights or in hot machine bearings.

Lithium in Air-Sea Rescues

Most spectacular use of lithium which can be disclosed at present is in air sea rescue work. Lithium hydride, a compound of lithium and hydrogen, releases free hydrogen when mixed with water. On this simple chemical property of lithium have been based techniques which have been responsible for saving the lives of an undisclosed number of pilots and plane crews downed at sea in combat areas.

It is lithium's lightness which makes it so valuable. A conventional metal cylinder holds 235 cubic feet of hydrogen under 2500 pounds pressure. This cylinder weighs 137

pounds. The same volume of hydrogen can be generated from 4.85 pounds of lithium hydride, which occupies a space of less than 0.1 cubic feet. And two one-pound cans of lithium hydride are all that is needed for its strange and dramatic war role, to save one bomber crew.

All armed services now equip planes which must fly over water with rubber life rafts. Part of the equipment of the raft is a portable radio sending set, dubbed a Gibson Girl because of its hour-glass shape. The Gibson Girl sends out automatic radio signals on the S. O. S. frequency.

The radio operates easily by merely turning a crank attached to its top. But to enable the signals to travel up to 400 miles, an aerial is necessary. This aerial is a 300-foot copper wire. The wire must be lifted into the air. To accomplish this, a balloon is attached to it (sometimes a box kite may be used instead). The balloon must be inflated; hydrogen, the lightest of all gases, is used to inflate the balloon.

It would be impractical and unsafe to weigh down a life raft with a heavy steel cylinder containing hydrogen under more than 2000 pounds of pressure. So lithium hydride, carried in a metal container which looks like an oversize tomato can, is part of the standard life raft equipment. One canful suffices to inflate a balloon, but two are carried as a safety margin.

The flier on the raft simply opens the can, attaches a nozzle to the balloon, holds the can in the water—and hydrogen pours forth into the balloon, which inflates in a few minutes. As the balloon rises, it carries the aerial with it and a man on the raft turns the crank on the Gibson Girl. His S. O. S. is picked up on ship or shore and a rescue party is sent out. This apparatus is standard equipment in air sea rescue work in all the military branches.

Post-War Uses for Lithium

The rather unique position of lithium in chemistry, its low atomic weight combined with a great diversity in reactivity, can now be commercially exploited to the fullest extent. The large scale facilities created during this war remove the main obstacle encountered before the war; a stagnant price situation. Prices have already been cut during the war and further anticipated price reductions are expected to extend the commercial applications for lithium beyond the premium product fields to standard commodities and

products made in bulk. Facilities for civilian supplies of the metal, compounds and salts are now adequate for the near future. Considerable progress already has been made in developing uses with postwar implications.

Lithium hydride will remain an important lightweight carrier for hydrogen, not only confined to its present use in air-sea rescue work.

Development of new metal products having special properties will expand the use of lithium alloys. Lithium hardens and toughens lead, at the same time increasing its strength.

Lithium-treated copper castings have optimum physical properties, particularly high electrical conductivity.

Lithium is a convenient grain refiner for many metals and alloys, such as lead, zinc, aluminum and certain copper alloys. Important developments are nearing conclusion concerning the industrial application of lithium in cast iron, carbon steels and stainless steels.

The standard Edison storage battery depends on lithium salts to stabilize the amperage. These batteries are used in factory trucks and similar heavy duty equipment requiring a compact, moveable source of direct current.

One of the most promising uses for lithium compounds is in air conditioning, particularly to control the moisture content of the air. As practically no lithium salts are consumed in this application, upkeep cost is extremely low.

Proposed uses of lithium chloride

and lithium bromide in air conditioning range from industrial applications such as blast furnaces, textile weaving and photographic film manufacture to comfort applications such as in homes, offices and theatres. Special applications are proposed for art galleries, storage rooms and holds in ships, where moisture must be controlled to prevent discoloration, mildew, etc. Uses of lithium salts to maintain moisture content at predetermined levels in food storage and refrigerator display cabinets also are feasible.

Successful application of lithium compounds to lubricants and greases developed during the war suggests its use in industrial soaps to improve their detergent or cleansing power under adverse conditions of temperature and pressure.

With expanding uses for helium gas, such as in welding magnesium, demand for lithium to remove final traces of nitrogen from helium should increase. Large postwar manufacture of electronic tubes will mean that more lithium is needed, as a "getter" to remove traces of gases in vacuum tubes.

Additional use of lithium compounds in glass making is likely. Lithium carbonate is now used to increase strength and weather resistance of some types of glass. In other ceramics, lithium compounds are used to prevent "crazing", the surface cracking which sometimes occurs during cooling. Lithium compounds also are used to increase the fluidity of molten glass and to lower its melting temperature.



Soft Lithium metal is easily cut with pocket knife.

FIRST AID TO THE VISITING SALESMAN

How some representative purchasing departments express their welcome to business callers, conserve time, and increase the value of the call

It's good business and good public relations to help the salesman

MORE and more business organizations are recognizing the importance of first impressions gained in the reception room, and are taking concrete steps to register a policy of gracious welcome and cooperation. It isn't always possible to see a salesman immediately, or to give him an order on every call; but it is possible to conserve his time, to enhance the value of his visit through a more complete understanding of company requirements, and to extend a dozen little courtesies for his comfort and convenience.

A simple and highly effective means of accomplishing this desirable end is to prepare a small folder or booklet, or card, to be handed to each caller by the receptionist. It puts the story across at the psychological moment, in the brief interval of waiting when it is most likely to be read, and sets the key for the interview. Some representative examples have previously appeared in these pages, and others are shown herewith, illustrating the type of information which may be included, helpful alike to the company and to its business guest.



This greeting folder features a business map of the city

City Map

The Connecticut Telephone & Electric Division of Great American Industries, Inc., at Meriden, Conn. uses a six page folder attractively printed in red and black. The cover page features the word "Welcome", and is illustrated with a view of the plant entrance through which the visitor has just passed. Opening the folder to the center spread of three pages, the salesman finds a good working map of the city, showing the principal business streets, railroad station and auto routes, and featuring the location of the various industrial plants which the salesman may wish to contact during his stay in the city—Cuno Engineering Co., General Electric Co., International Silver Co., Manning Bowman, Miller Co., Charles Parker, and Remo Mfg. Co., in addition to the C. T. & E. plants. The value of this graphic information to the salesman planning his calls with a minimum of lost motion is obvious, and it is supplemented by an invitation to call on the receptionist or any member of the plant police force for further information. Public facilities such as the hotel, hospital, and City Hall are also identified on the map, and—for the salesman who must stay over, the golf courses and ball park are also shown.

Alongside this map, under the heading "Make Yourself at Home", are listed a few suggestions or courtesies and service that the company offers to the visitor—how to reach a proper alternative individual in case the one asked for is not immediately available; stamps, stationery, and mailing service at the reception desk; timetables for trains and buses, and taxi calls; routing of telephone calls to the point of the interview; and the file of signatures and credentials to avoid red tape in plant admissions on succeeding calls.

On the last two pages are a brief outline of the company's activities and the explanation of the corporate structure and its relation to affiliated divisions "So you'll know us better", and a directory of key personnel to help the caller find the right person to contact.

Guide to Purchasing

The Hinde & Dauch Paper Company, Sandusky, Ohio, has compressed into a pocket-size folder of twelve pages a comprehensive guide to pertinent purchasing information regarding its organization, that fully lives up to the philosophy expressed in its title: "Your Business Is Our Business . . . and Vice Verse." By an ingenious folding arrangement, the booklet provides a marginal index to the various sections, so that the caller can quickly and conveniently refer to the appropriate pages for desired information.

Starting with a welcome message that has the ring of sincerity, candor and friendliness, in stating the company's policy of saving the time of its business visitors, the first spread also contains the following statement:

Here's Our Office Schedule

Our work day starts at 8:30 A.M. From 12 to 1:15 is "time out for lunch." Our afternoon hours are from 1:15 to 5. Most of us are ordinarily occupied with office detail during the first hour of the morning, and if possible we like to keep the last hour of the day free also.

Therefore, if you can schedule your calls between 9:30 and 12 in the morning, or between 1:30 and 4 in the afternoon, it will be more convenient for us and it will reduce your "waiting time."

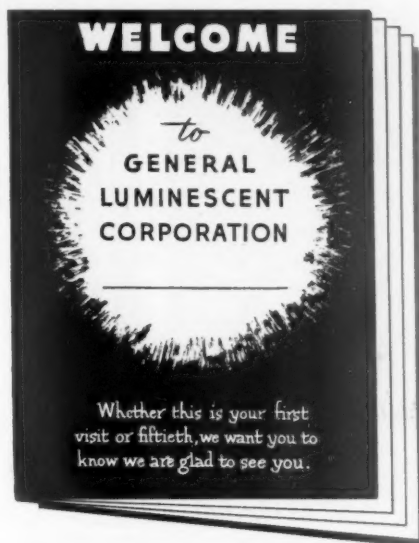
The second spread is devoted to a broad statement of "What We Make—What We Buy." That's good information for the potential supplier to have, and incidentally it provides the opportunity for planting the seeds of ideas for possible outlets for the company's products.

The third section lists the management men "With Whom You



A message of welcome from the President of General Luminescent Corp.

There's a personalized welcome for the caller at Raybestos Division



May Wish to Talk." This compilation has been made especially useful by showing the particular items or subjects handled by each major executive—a practical and specific guide that steers the caller directly to the individual qualified and authorized to discuss his product or service. The list includes:

SIDNEY FROHMAN, President and General Manager.

CHARLES E. FROHMAN, Vice President. General executive and legal subjects, government regulations, public relations.

J. M. MACLEOD, Vice President, Sales. General sales and marketing subjects, sales presentation materials, sales control devices, souvenirs and novelties.

PETER KLOTZ, Vice President, Factories. Factory machinery and equipment.

E. A. WALTHER, Vice President, Production. Factory production machinery and equipment; new material, machinery and equipment developments, raw materials.

W. F. PFEIFFER, Secretary and Treasurer. Financial subjects, Federal and State taxes.

L. R. WENDT, Assistant Secretary-Treasurer, Office, Credit and Insurance Manager. General insurance, State workmen's compensation, social security, State employment compensation, office personnel employment, purchase of office furniture and equipment.

JAY DANIELS, Comptroller. Accounting, payroll and bookkeeping machines, calculating machines (excluding Comptom-

eters), duplicating equipment; payroll methods.

C. N. KIEFER, Director of Purchases. Adhesives, caustic soda, coal, electric lamps, fuel oil, maintenance and repair supplies, operating supplies, raw materials, soda ash, straw, tape, waste paper.

L. A. BUTLER, Purchasing Agent. Blades and slitters, carbon paper, felts, knives, janitor supplies, miscellaneous office supplies, printing paper, printers' supplies, saws, steel, steep strappings, type-writer ribbons.

D. L. OWEN, General Superintendent of Mills. Construction and maintenance material and equipment, paper mill equipment, paper mill operating problems, power plant equipment, power plant operating problems.

PAUL MEELFELD, Manager, Advertising and Sales Promotion. Advertising novelties, duplicating equipment, engravings, media, printing, tabulating equipment.

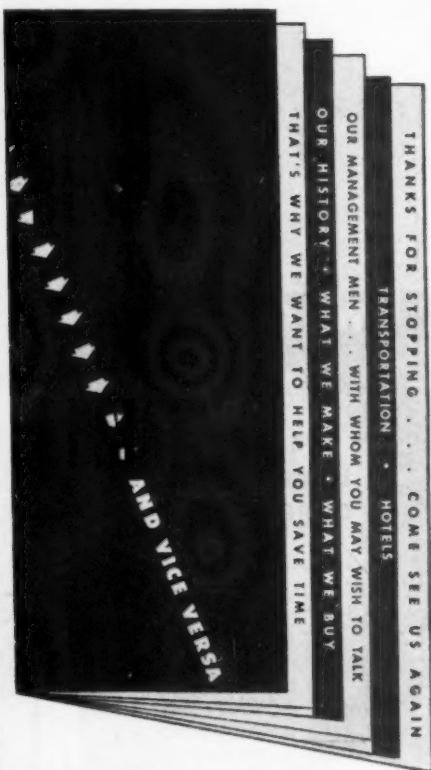
H. J. ZEITZHEIM, Art Director. Artists' materials, brushes, colors, drawing instruments, rubber cement.

A. C. HEHL, Box Printing Department. Rubber printing dies, zinc etchings and electrotypes.

A. C. RECKINGER, Traffic Manager. Express, rail, truck transportation.

S. S. KNISELY, Mechanical Engineer, Factory.

C. B. HAYS, Mechanical Engineer, Factory. Belting, carpenter supplies, chains, drafting room equipment, furniture and fixtures, general mill supplies, machine drives, machine tools, maintenance materials, metals, plumbing supplies, steel, tools.



The H&D folder is uniquely indexed for the salesman's convenience

J. R. LITTLE, Testing Laboratory. Asphalt, chemicals, coatings, colors, dyes, equipment and service; fireproof, greaseproof, moistureproof material; laboratory equipment and supplies, mold inhibitors; plastics, sizing, testing instruments.

JOHN UNCKRICH, Electrical Engineer. Electrical supplies, lighting and power equipment.

G. M. BOISEN, Printing Department. Creasing and cutting equipment and supplies, paper, printing, printing inks and supplies.

FRANK HARPEL, Printing Department. Creasing and cutting supplies.

GEORGE ENGELHORN, Printing Department. Job printing paper and supplies.

W. C. ARMBRUSTER, Printing Department. Experimental printing, printing inks, varnishes.

C. J. OBERGEFELL, Color Department. Coatings, colors, dyestuffs, embossing, laminating equipment and supplies.

Transportation and hotel information are given in the succeeding section. The booklet concludes with a "Thank you" for the call, and suggests contacting the other H&D factory offices, where materials are also purchased.

A Personalized Welcome

The Raybestos Division of Raybestos-Manhattan, Inc., at Bridgeport, Conn., adds a personal touch by providing a space on the cover of its folder, in which the receptionist can insert the caller's name at the time he registers, so that he is handed a folder reading: "Hello, Mr. A. B. Jones. You're Wel-

come!" The inside pages carry a cordial greeting and statement of policy; notification about office hours, parking space, washroom facilities, etc.; and a list of twenty-nine key officials whom the caller may be interested in seeing, with names and titles. The back cover lists and illustrates typical company products for both war and civilian use, suggesting the range of materials and supplies that the company purchases as well as identifying its output.

Brief and to the Point

Wiremold Corporation of Hartford, Conn. carries out the theme of expeditious reception and interviewing in the format and phraseology of its welcome card, as well as in practice. It is a simple, bold and straightforward announcement on a plain white card, 5½ x 8½ inches in size:

Wiremold's Welcome to Salesmen

We welcome you!

Our suppliers are just as important to us as our customers.

Everybody here is busy and we know you are.

We desire to get you *In* and *Out* in a hurry.

However, if you do not get to see your party within five to ten minutes, please remind our reception clerk that you are waiting.

Call again. Thanks.

D. Hayes Murphy, President
This is language that the salesman can understand. He, too, wants to get in and out in a hurry, provided the interview is adequate for the purpose. So, to the benefit of salesman and buyer alike, the meeting is promptly placed on a strictly business basis, while the obvious sincerity of the final line, with its invitation to come again—on business—adds the touch of friendliness and

mutual interest that offsets the generally brusque style of the statement as a whole.

Message from the President

"Whether this is your first visit or fiftieth, we want you to know we are glad to see you," is the cover message on the folder salesmen receive at the General Luminescent Corporation, Chicago. On the inside pages, this is amplified in a message of greeting from President Charles A. Pollak:

"We, of General Luminescent Corporation, are always glad to see you. If you are waiting, you will not have to wait long. We have a very firm rule in this organization, and that is, each and everyone must be seen within ten minutes or an explanation given. You see, we, too, sell our products. We, too, must go out for technical conferences. We, too, make just friendly visits, and we, like you, just hate to have our time wasted sitting around waiting for someone.

"If you have something to sell us, we are very glad you came. We often cannot buy from you, for one reason or another; however, we want you to know that you are always welcome.

"We thank you for your service and hope that you will always feel that G. L. C. is a friendly organization offering a friendly hand to you."

Along with this greeting, the booklet contains a page of information on the facilities maintained for the convenience of callers; a directory of key officials—"Persons you may wish to see"; a brief illustrated list of the company's products; and a map of the business district of Chicago in which G. L. C. is located, showing also the railroad stations, principal hotels, banks, and department stores.

In size and make-up, the booklet is attractive and unpretentious—eight pages, 4½ x 6 inches, using informal sketches for illustration.

Wiremold's Welcome To Salesmen

We welcome you!

Our suppliers are just as important to us as our customers.

Everybody here is busy and we know you are.

We desire to get you *In* and *Out* in a hurry.

However, if you do not get to see your party within five to ten minutes, please remind our reception clerk that you are waiting.

Call again. Thanks.

D. Hayes Murphy,
President

Wiremold's welcome is brief and honest

What is

THE FUTURE OF SUBCONTRACTING?

Subcontracting is a procurement technique born of wartime necessity and highly developed during the period of emergency. With the abrupt termination of war contracts, subcontracting is likewise terminated. But if the method has sound and permanent merit, it will be continued as a purchasing technique in the days ahead.

Consensus of representative purchasing men is that, initially, much of the production heretofore subcontracted will be drawn back into the buyers' own plants, but that the practice will shortly be resumed on a selective basis, in a proportion approximating wartime schedules.

Here is a check list of the major factors to be considered in such a decision.

FOR SUBCONTRACTING

More favorable cost.

Specialized equipment and know-how in subcontracting plant, concentrating on the single type of operation, make for greater efficiency.

Broader engineering knowledge is available to the buyer making use of the subcontractor's staff as well as his own.

Supply base is broadened by use of two or more subcontractors, and procurement has the advantage of competition.

Manufacturing burden is a problem and responsibility of the subcontractor, regardless of quantities involved. Employment is more widely spread. Procurement is more flexible and can be placed in areas of greatest labor stability.

Purchasing is simplified—one complete item procured from a single source, as compared with many orders for varied materials from several sources.

Some subcontractors have proved themselves as satisfactory suppliers. These sources can be maintained and strengthened.

Subcontracting may be the means of getting into production faster on postwar products, thus speeding reconversion.

In war production, speed and volume of output were increased by subcontracting; the same results can be attained for peacetime production, as required.

AGAINST SUBCONTRACTING

More favorable cost; subcontractor's profit accrues to buyer's organization.

What can be accomplished in a supplier's plant is equally possible in the buyer's plant.

Better control of quality is possible when production is handled in the buyer's own plant. One responsibility for quality is preferred to divided responsibility.

Self-manufacture places less dependence on outside production promises and costs.

More complete utilization of production facilities distributes overhead costs over a larger volume of operation.

More employment is provided within the buyer's organization, giving jobs for the absorption of returning service men from the company's staff.

Incoming transportation rates are generally lower on raw materials than on fabricated products.

Wartime experience with some subcontractors has been unfortunate. Outside supervision and inspection is costly, requires additional personnel.

Some postwar products are still in the development or experimental stage, and this development should be kept under close supervision until designs are fixed. Production can be better coordinated, scheduled and balanced on short notice in the buyer's own plant. Greater flexibility in procurement and production when not dependent upon subcontractors' schedules and promises.

HOW BYRON JACKSON COMPANY BUYS

Two buyers and seven clerks handle the purchasing program for two major product lines, involving 1600 orders per month.

By FRED M. BURT

THE Purchasing Department of the Byron Jackson Company of Los Angeles, under the direction of Purchasing Agent E. C. Prairie, has an overall procurement responsibility for two entirely different lines of production—oil tools and pumps. The principal oil tool production is in the Vernon Avenue factory, with another factory and sales office in Houston, Texas. The Slauson Avenue Plant is the location of the major pump production (and of the purchasing department), with smaller plants in Fresno, California, and Bethlehem, Pennsylvania. The sales branches located in San Francisco, Salt Lake City, Kansas City, Tulsa, El Paso, and New York, route some of their purchasing procedures through Los Angeles also, as will be outlined. Within the next year, the Pump Division will be moved to the Vernon Avenue location in a new \$1,500,000 plant and equipment project.

The Oil Tool Division produces such units as BJ Triplex Hooks, found on a majority of wells drilled to depths of from 6,000 to 15,000 feet, where strings of pipe weighing up to 300 tons must be lifted, elevators used for raising and lowering pipes of all kinds in water, oil and gas wells; weldless links forged from a single piece of alloy steel; connecting hooks and elevators, some of which, in pairs, have safe

load-carrying capacities in excess of 1,000,000 pounds; tongs used for screwing together and unscrewing all types and sizes of pipe from $\frac{1}{2}$ " to 24" in diameter. These and many other BJ drilling, production and coring tools are used in oil fields throughout the world.

While the oil tools are largely standard production items, although improved from time to time as research, field operations and other tests point the way, the pumps are engineered and manufactured to meet all industrial needs. There are single and multi-stage centrifugal pumps, turbine pumps, and submersible pumps; pumps with a capacity of 90,000 gallons per minute at 300 foot head; double-case pumps handling oil at 1,000 degrees F. at up to 2,000 pounds pressure per square inch; submersible motors and pumps

that have saved cruisers and other warships after they have been torpedoed, by rapid "dewatering" of their flooded compartments, allowing them to proceed thousands of miles under their own power, to the safety of a drydock; and a variety of other pumps performing other duties too numerous to mention.

Purchasing Experience

Thus it may be recognized that providing all of the supplies necessary for this diversification of manufacture in the different locations constitutes a major purchasing problem. Until recently this was still further complicated by buying for the Munitions Division, at the Vernon location, since converted into manufacturing for the other two divisions. This Division, started in



E. C. PRAIRIE

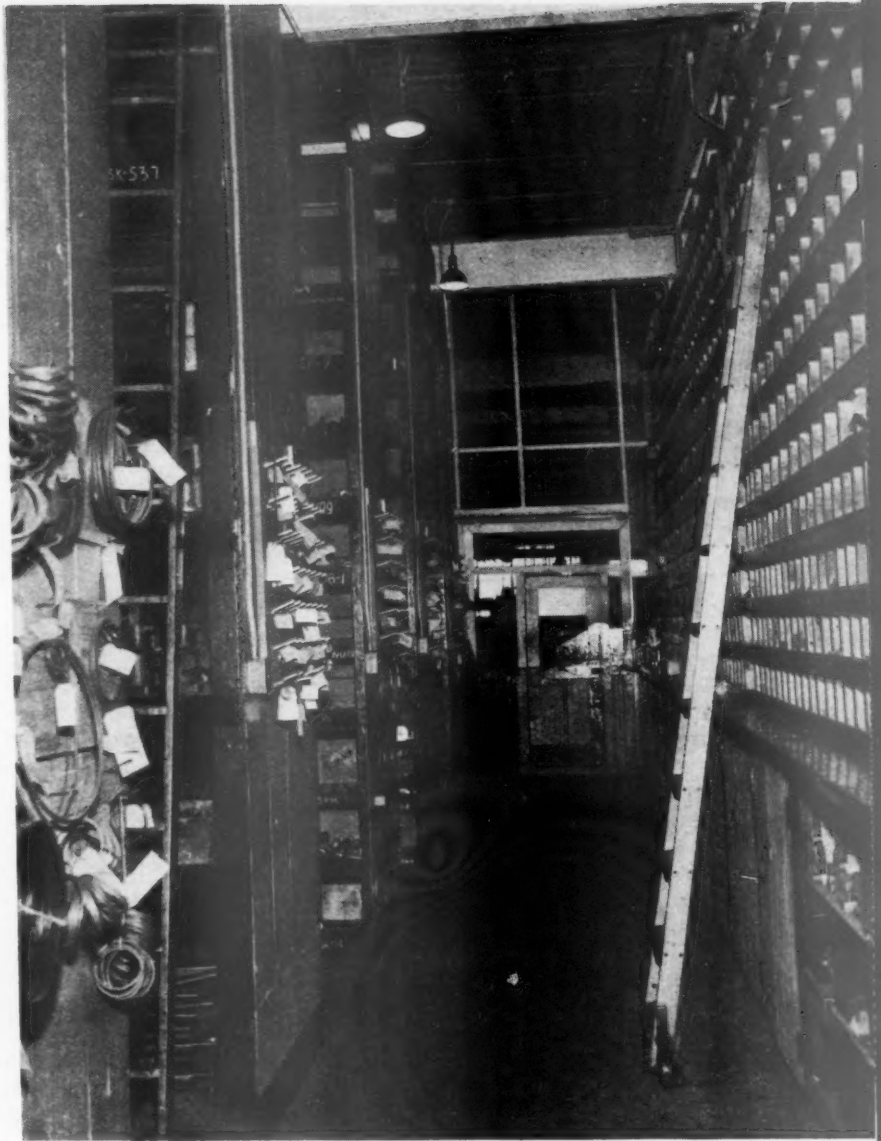
Purchasing Agent, Byron Jackson Co.

Small stores stockroom, 35' x 80', Pump Div. Note gaskets carried on peg boards at ends of double bin sections. Eight of the latter, 14 bins high, 19 bins long. Total of 3700 bins in the stockroom. Stockroom service rendered by one man due to long experience in pump supply stockkeeping and systematic, convenient arrangement and marking of supplies in bins.

1939, produced recoils for 75, 76, 90 and 105 mm guns, and received two Army-Navy "E" Production Awards at one time in 1942, "for high achievement in the production of war equipment".

The pattern of development and operation of this Purchasing Department is consistent with that of other departments of the company. In its growth to the present large size, from its start by Mr. Byron Jackson in his little shop in Woodland, California, in 1872, the progress of the company has been largely based on the efforts and knowledge of good key men who have learned their jobs well staying with the company, growing and developing with it. Purchasing Agent Prairie is a good example of such key men in the organization. He has been with Byron Jackson Company for thirty-two years, and has served as Purchasing Agent since 1930.

The knowledge gained from these many years of close association with every phase of operation through making all procurements, has resulted in a system of purchasing and allied activities that has long been stripped of all nonessentials though without any resultant lower-



Oil Tools on the 135' high, test derrick, including 200 Ton BJ Triplex Hook suspending twin weldless links to which an elevator is attached. Oil Tool Superintendent Jack Hunter at right.

Multi-stage, BJ centrifugal pump to be operated with 1100 H.P. engine, with the capacity to pump 850 gallons of water per minute at a discharge pressure of 3,650 PSI, with two pumps in series.



ing of efficiency of operation. A good proof of this lies in the fact that the purchasing routine as outlined in a manual compiled by Mr. Prairie in 1930, though analyzed many times for possibilities of improvement, is basically the same as that used today.

Requisition Procedure

The first step toward the purchase of any materials, shop and office supplies, is the use of the Purchase Requisition (Form 1), made out in triplicate. Requisitions are written only by those designated employees who are familiar with the stock on hand of the material being requisitioned, and must carry the written approval of the department head. The requisition must be filled out completely, and it is the duty of the Purchasing Department to question all that are not complete.

Requisition to purchase all production material must come from the Production Control Department, and all substitutions for standard production material must have the written approval of the Chief Engineer. Requisitions for shop supplies and equipment must have the written approval of the Superintendent or Works Manager of the plant.

The requisition forms, purchase orders, and all other forms mentioned herein are the same whether

they come from the Oil Tool or the Pump Division, except that the name of the particular division appears along with the company name. The procedure in each case is identical. However, they are handled and filed separately, except in those cases where it is advantageous to make a combined purchase, and when one purchase may be made to supply the two division. Even in such instances, separate records are kept.

It is always preferable that one requisition shall cover one class of material only. Whenever a capital expenditure is in excess of \$100, it is secure the approval of the company President or a person designated by him to authorize the expenditure for that class of material or supply.

Bids and Follow-Up

The requisition is made out in triplicate. Copy 1 goes to Mr. Prairie for his analysis and clarification (if indicated), and for his selection of vendor. Although many of the requisitions are for routine and repetitive purchases, and do not merit detailed attention from the Purchasing Agent, this procedure of having every one of them clear across his desk is observed so as to keep the overall procurement picture before him. Much of the actual purchasing detail is handled by Assistant Purchasing Agent E. T. Quarnstrom.

The Purchasing Department secures competitive bids whenever the class of materials allows for competition. These bids, with any other pertinent information such as supplies available, shipping data, and the like, are noted on the reverse side of the requisition. On competitive items—except in cases where special design, performance and adaptability are the governing factors of selection—price and delivery controls the placing of orders. Although the authority to secure bids and place orders is vested solely in the Purchasing Department, it is the company policy that in those special cases where design, performance and/or adaptability are the major factors, the department responsible for subsequent performance may designate the exact material or supply to be purchased.

The Purchasing Department secures all original delivery promises, and on production material reports these promises to the Production Control Department as soon as possible, and thereafter they handle all follow-up on local deliveries. Purchasing conducts follow up and all further correspondence on foreign (out-of-town) purchases. All quantities that seem to be excessive are questioned, and any speculative attitudes in requisitioning materials are discouraged as the effort is made to keep inventories at the minimum

Truck shipping and receiving dock, Pump Div. Note handling equipment, jib crane with power hoist, also hook of large, 10 ton crane. This crane also runs out over railway spur at other end of building, servicing car unloadings.



OF 1 1935 1-40

Order

Purchase Order

Received From

QUANTITY

Condition when

5

[illegible][illegible][illegible][illegible]

consistent with efficient operations.

Copy 2 of the requisition is kept at the point of origin and filed numerically. Copy 3 is sent to the Receiving Department file.

After a requisition to purchase has been OK'd by the proper authorities, the purchase order typist writes up the purchase order (Form 2) in quadruplicate. She also has the duty of telephoning rush orders that are to be followed by purchase order confirmations, and other general phone work, including locating short items, etc. The completed purchase order is distributed as follows:

The Purchase Order

Copy 1 (white)—Mailed to vendor.

Copy 2 (pink)—Purchasing Department work sheet, stays in the department and always has price or estimate entered on it. Spaces are provided to keep a record of receipts by date, quantity, weight, date and amount of invoice.

Copy 3 (blue)—Sent to order where requisition originated.

Copy 4 (yellow)—Sent to receiving clerk.

After the purchase order is made out, the requisition copy is filed in the Purchasing Department, numerically and by Divisions.

There are two forms similar to the purchase order in use, and similarly routed. One of these is used for change orders and can-

cellations. The other is used by branches as an order on the Purchasing Department, in place of the requisition to purchase, in such cases where combined or centralized purchasing is deemed advisable.

Purchase Records

Two sources or purchase record files are kept in the Purchasing Department, here referred to as vendors' files. For production materials the record is kept in a numerical file, arranged according to parts numbers (Form 3). For miscellaneous purchases, supplies not included in the category of production material, a similar file is kept (Form 4) alphabetically according to product name, a separate card for each item. The production material card contains spaces for listing five alternative vendors; the miscellaneous material card has spaces for six. A price clerk prices the purchases orders each morning and posts invoices to the vendor's records. She also assists the purchase order typist in her telephone work. Another girl devotes her time to follow-up correspondence and other follow-up work as required.

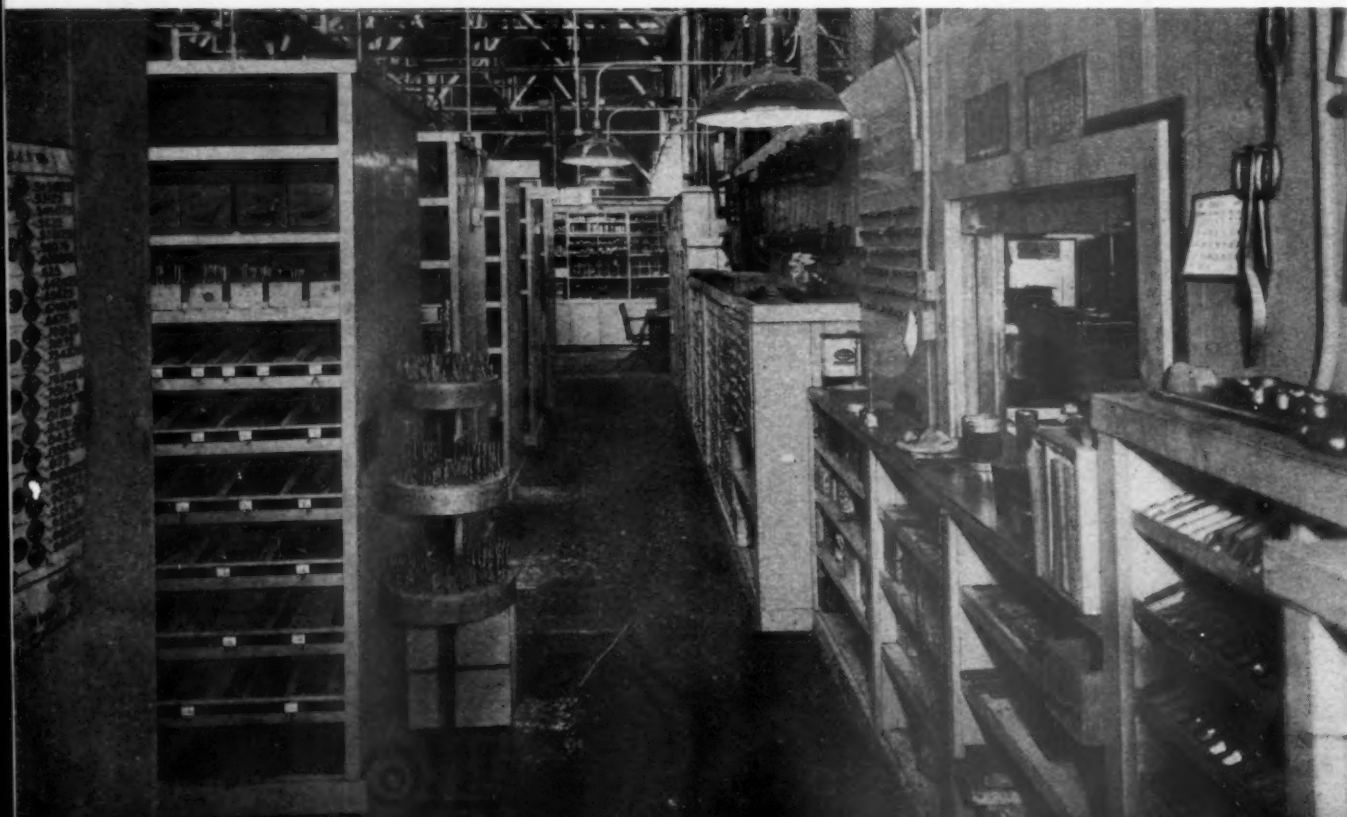
Receiving Procedure

When a shipment is received by one of the receiving departments (the procedure is the same in both Divisions), the information as to

exactly what was received, and when, is recorded in the spaces provided on the purchase order copy, corresponding to the tabulation later made on the Purchasing Department copy, as described above. Quantity and price information is blocked out on the receiving department's copy of the order. Then this receiving copy is sent with the vendor's shipping memo to the requisitioning department, where the receiving data is posted on their copy of the purchase order. Then both sheets travel on to the Purchasing Department for a similar posting. The receiving copy of the purchase order then goes back to the Receiving Department for filing and for possible further use in recording additional shipments on the order, when it follows the same course of routing for posting purposes. Vendors' shipping memos are filed alphabetically by vendors' names. Completed purchase orders are filed numerically. When a delivery is made without a shipping memo, the receiving clerk makes out a receiving record (Form 5) to take its place.

The receiving receipt (Form 6) is made out in triplicate for use when Byron Jackson products are returned for credit or repairs. One copy is given to the customer's agent as a receipt for the delivery; the second copy goes to the Order Department to provide information

Section of Oil Tool stockroom. Note systematic arrangement and high standard of good housekeeping.



for a credit memo or for an order for the work to be done. The third copy is sent to the Production Department.

When material is returned to a vendor for credit or replacement, a special form (Form 7) is made out in quadruplicate. Copies 1 and 2 are sent to the vendor, the second copy to be signed and returned to the Purchasing Department as a receipt for the material. Copy 3 is filed by the originating department from which the material was returned. Copy 4 is retained by the Purchasing Department in a numerical file as a tickler record until Copy 2 is returned; then Copy 4 is sent to the Cost Department as a notification that a credit memo or replacement is to be expected, with pertinent details as to quantity and cost.

Checking Invoices

Three invoice clerks in the Purchasing Department handle respectively: (1) castings invoices, (2) Oil Tool Division invoices, and (3) Pump Division invoices. When an invoice is received, it is given to Mr. Prairie by his secretary (the ninth and final member of the departmental personnel to be listed) for his scrutiny, and for subsequent distribution to the proper invoice clerk. Each invoice is checked against the purchase order and the receiving information for price,

quantity, etc., and must be initialed by the person checking it to show who is responsible for the accuracy of the quantities, prices, terms, and extensions. After the receiving, posting and checking of the invoices, they are returned to Mr. Prairie for his final approval. His initialing of the original copy, which goes to the Accounting Department, indicates that it should be paid as approved. The second copy is sent to the Production Department, and the third copy goes to the vendors' alphabetical file in the Purchasing Department.

When an invoice is incorrect in any respect, it is returned to the vendor with an invoice correction notice (Form 8) attached. The eleven possible reasons for return that are listed on this form cover the vast majority of cases and a simple check mark indicates to the vendor what is required: Show purchase order number; Show requisition number; Purchase order number incorrect; Render invoice in triplicate; Render separate invoice for each order; Error in extension; Error in footing; Received in error; Render invoice to; Add sales tax; Deduct sales tax—material for resale. Blank lines are provided for explaining the exceptional cases.

The stockrooms in both Divisions are commodious and well arranged, and a high standard of good housekeeping is maintained. When an

item used by some production department, that is not an ordering responsibility of the storekeeper, becomes low in stock, it is reported by the storekeeper on Form 9 to the using department, as notice that a requisition to purchase should be sent to the Purchasing Department.

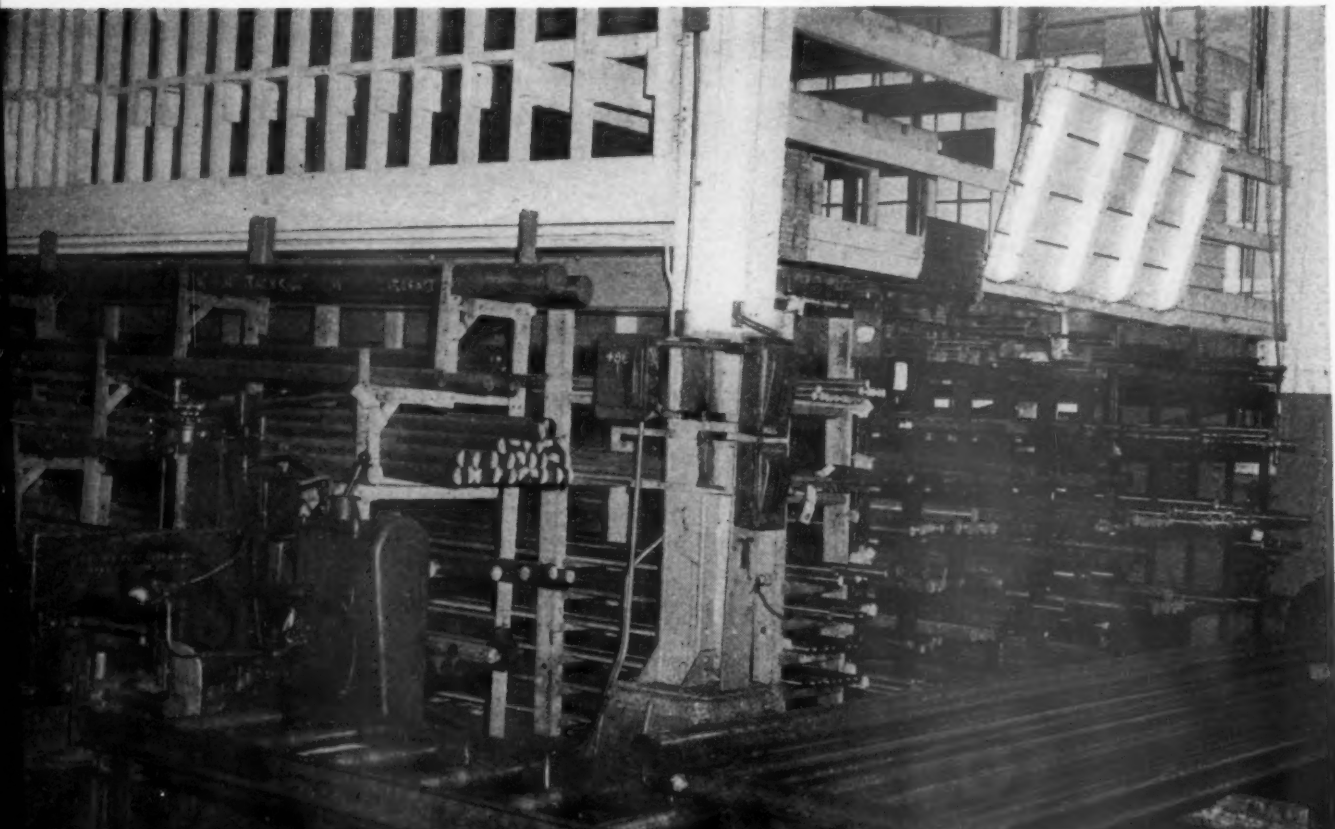
Various forms are used to requisition materials and supplies to be issued from stockrooms. Representatives of these are the Electrical Equipment Stores Issue of the Pump Division (Form 10), the Raw Material Stores Issue (Form 11) and Finished Stock Stores Issue (Form 12) of the Oil Tool Division.

In each warehouse, perpetual inventories of materials and parts on hand are kept on warehouse stock cards (Form 13).

An average of 1600 to 1800 purchase orders per month are placed by this compact and efficient Purchasing Department. Several hundred up-to-date catalogs are kept in alphabetical order, in two bookcases, for quick availability and reference. There is also a good file of pertinent industrial publications.

In addition to procurement responsibilities, the Purchasing Agent also has charge of the company's fleet of 30 passenger cars and 16 trucks. Operating costs for this equipment are accumulated by the use of a monthly work sheet (Form 14) and the annual summary sheet (Form 15).

Rod and bar stock storage, Pump Div. Ends of stock are all painted with colors corresponding to color chart code. Power saw, left foreground.



NEW ENGLAND P.A. ASSOCIATION MARKS 40th ANNIVERSARY

Pioneer organization of purchasing men preceded national body by full decade

AT A gala meeting in the Statler Hotel on October 9th, the New England Purchasing Agents Association celebrated the fortieth anniversary of its organization. Founded in 1905, and antedating the National Association by a full decade, the Boston group has the distinction of being the oldest organization of purchasing men in existence, by a substantial margin.

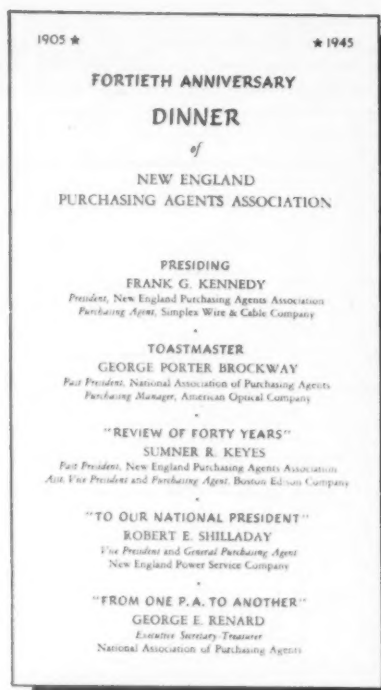
The span of forty years of consistent growth in numbers and in stature, and of constructive service to the profession which it represents, is a record of which any business organization may well be proud. Its history is one of success and service throughout the whole range of economic and business cycles—the period of big business development, two world wars, and the era of profitless prosperity and world depression in between. Now entering the period of reconversion and postwar adjustment, the New England Association is today at its membership peak, with more than 330 active members. One of its

members is President of the National Association of Purchasing Agents; another heads the important National Committee on Education; and two of the four awards in the 1945 N.A.P.A. competition on "Postwar Responsibilities of the Purchasing Department"—open to 9,000 purchasing men in 71 local chapters—went to New England Association men.

Anniversaries are of course no novelty to an organization with this historical background, and each succeeding anniversary means more than those which have gone before. But the fortieth anniversary has a special significance beyond the mere addition of five more years. In purchasing, the youngest of the major business functions, there are many still active who were themselves among the pioneers and developers. Through personal contacts with these men, many more find a connecting link with the earlier formative period and identify themselves with that development even though their own personal experience has

been of shorter duration. But at the 40th milestone, there are scores of members who find the Association older in years than they are themselves. It was in existence—an actual, going organization—before they were born. So far as they are concerned, it has always existed as a part of the business world that they have known. That is a brand new feeling in respect to purchasing associations. It imparts a character of permanence and solidity to the work that could be achieved in no other way. Time alone has brought this about, however long ago such a rating might have been earned.

The New England Association joined the federation of local groups that make up the National Association, promptly and enthusiastically. It has taken an active and prominent part in every phase of the national program. It has sponsored courses in purchasing, and furnished instructors for them, at Northeastern University, Boston University School of Business, and Massachusetts State Extension University. Two of the N.A.P.A. specialist consultants—Prof. Lewis of Harvard University and Herbert McGill of McGill Commodity Service—have been closely identified with the group. Twice, in 1924 and 1933, it was host for the N.A.P.A. conventions in Boston. It has been strongly represented on the executive and other committees of the National organization, with chairmen of the textile, container, and educational committees and two



FRANK G. KENNEDY

Purchasing Agent, Simplex Wire & Cable Company
President New England Purchasing Agents Association



HARRY J. GRAHAM

now serving in his 25th year as Secretary of the New England Purchasing Agents Association and Editor of the *New England Purchaser*

chairmen of the active Public Utility Group. Of especial significance is the fact that the last three men it has elected to serve on the National Executive Committee have gone on to the presidency of N.A.P.A.—G. P. Brockway of American Optical Company in 1937-1938, F. A. Hayes of American Hide and Leather Company in 1941-1942, and C. L. Sheldon of Hood Rubber Company in 1945-1946.

A large delegation of out-of-town guests attended the Anniversary Meeting in tribute to the splendid record of the Association, and to join in honoring National President Sheldon, who appeared before his home Association for the first time in his new official capacity. These included District Vice President Everett A. Taylor of Providence, Past President Robert C. Swanton of New Haven and representatives from the other Associations in District No. 9—Connecticut, Rhode

Island, and Western Massachusetts. Speaker of the evening was George A. Renard, Executive Secretary of N. A. P. A., who gave a brilliant address on meeting the economic and political problems of the postwar period, under the title, "From One P. A. to Another." Pointing out that the Four Freedoms do not and can not include Freedom from the Consequences, Mr. Renard attributed most of our present difficulties to the temporizing and selfishness of political decisions in the past and urged sound economic thinking on a scale to include all nations and all classes as the only way to avert future problems and another world conflict.

Sumner Keyes reviewed the early history and development of the Association and voiced a popular tribute to Herbert L. Ogden of the New England Power Service Company, the only charter member still active in membership. Mr. Ogden is credited with effecting the organi-

zation of the group, in 1905, following the suggestion made by J. Frederick Kemp, the Purchasing Agent of the Fore River Shipyards at Quincy, Mass. He served as first secretary of the Association and as one of its early presidents. Also cited as being among that little group of seven purchasing men who used to meet at the old American House forty years ago, and still engaged in purchasing work, were Edgar H. Savage of W. F. Schrafft & Sons Corp., and Chester Daley of W. F. Keith Co., Brockton.

The committee in charge of the meeting included: George P. Brockway of American Optical Co., Chairman; William P. Cummings of New England Confectionery Co.; Paul T. Haskell of Parker Brothers Co.; Lloyd A. Lowe of C. H. Sprague & Sons Co.; Wyman S. Randall of Rust Craft Publishers; and Robert H. Sibley of W. F. Schrafft & Sons Corp.

WHAT PURCHASING ASSOCIATIONS MEAN TO BUSINESS and BUYERS

All purchasing men and their companies are beneficiaries of this united effort

THE movement that started on such a tiny scale in Boston forty years ago, when a handful of men were drawn together by the bond of their common occupation as industrial buyers, has had far-reaching consequences for every man in purchasing. The first result of that association was to change the status of purchasing from that of a job to a function of industrial management. In business research there is a saying that when a thing happens once, it is an accident; when the same thing happens twice, it is a coincidence; but when it happens three times, it is a trend. Just so, before buyers got together as a group, the individual purchasing agent had merely a casual job in the buying assignment; but when they

established themselves as a group or class, all engaged in the same type of service and activity for their several companies, it became recognized—by themselves and by their managements—that they were performing a distinct function in the industrial process.

At first this function was seen only as the act of buying. But as their composite experience was better understood, the definition was broadened to include the whole function of procurement. With greater knowledge and vision, it came to be recognized as dealing with the still broader field of materials management. And as they came to know more about their field, they found that the expenditures for materials and supplies

represented, on the average, more than 50 cents of the nation's manufacturing dollars—a function that, measured in dollars and cents, represented not only the greatest single expenditure, but a sum greater than all the others put together. Truly this was, and is, an important function. Purchasing men should never forget, in their association objectives and programs, that their fundamental bond—the common denominator of membership—is this function of the procurement and management of materials.

The second great contribution

* Abstract of an address by Stuart F. Heinritz at a joint meeting of the Florida Purchasing Agents Association and the Southeastern District Council, N.A.P.A., Tampa, Florida, October 3rd, 1945.



G. P. BROCKWAY
President, 1937-1938



F. A. HAYES
President, 1941-1942



C. L. SHELDON
President, 1945-1946

Three N. A. Assn. Members Have Become N. A. P. A. Presidents

has been that through the pooling of experience and interchange of ideas, better ways were found for performing this function. No one man, working alone, is smart enough to know all the right answers. No one is so self-sufficient that he cannot learn something from seeing how the other fellow does his job. Self-improvement, with a view to better procurement methods and policies, was one of the early and continuing objectives of this association.

It is interesting to note how this viewpoint has changed and developed over the years. Among the early projects of purchasing associations was the effort to devise and promote standard forms—standard purchase orders and invoices, presumably embodying the ultimate perfection of office procedure and efficiency. These projects never made much headway toward widespread and enthusiastic acceptance. The reason, seen in retrospect, is simple: these were but superficial details. A dozen similar forms could be devised to do the job as well as the proposed standards; a dozen individual variations would make them more adaptable to the needs of the several companies. The important thing was to analyze the purpose of such forms and procedures and to fit the system to the need.

In the office of the dean of a college of business administration hangs a sign which reads:

*The man who knows how
will always have a job.*

*The man who knows why
will always be his boss.*

So the emphasis in association research on purchasing methods has been toward the functional approach, learning more about the job

to be done and from that knowledge developing the means of accomplishing those ends most efficiently for the individual company, however those means might differ in detail in different organizations. Instead of considering the routine mechanical procedure, the basic principles of purchasing have been studied, analyzed, and codified, until they are well established and understood by anyone who will take the trouble to familiarize himself with them. No one today judges the merit of a purchasing system by the form in which a requisition comes to the purchasing department—whether in one copy or in triplicate, or on a repeating requisition form, or from the bill of materials, dispensing with the requisition form altogether. What interests the purchasing man is to have some—any—prompt and positive means of presenting a clear statement of the requirements and providing the authorization to purchase the necessary materials.

The objective of better methods is, of course, better service to the company as a whole, the most effective means of capitalizing on purchasing skill and experience to provide a smooth and steady flow of proper materials, where and when they are needed, at the lowest cost consistent with the quality and service required. The third great contribution of associated effort has been to establish standards of organization, facilities, and authority to accomplish this purpose. The centralization of purchasing responsibility is a first step. Then comes the principle that this responsibility should be divorced from the control of production executives in order that procurement factors may be given their due consideration, without infringing in any way on

production's right to define the necessary quality standards. In 70% of the companies where the purchasing program is big enough to constitute a full-time job, this principle of organization has been accepted. Along with it come the basic prerogatives of a purchasing department—freedom of choice as to sources of supply, full authority in negotiating the terms and commercial factors of a transaction, and recognition as the initial and final point of contact with vendor companies and their representatives. The individual purchasing agent has frequently sought these privileges in vain. Purchasing agents as a group have clearly demonstrated to management that these principles are intrinsic in good purchasing administration, and that it is simple good business practice to operate in accordance with such a plan.

Fourth, along with this, has been the establishment of ethical standards for the conduct of purchasing. No printed code can ever take the place of personal action, nor can it erase the record of the occasional member of any profession who is constitutionally addicted to sharp practice. But it can show him for what he is—a maverick, outlawed by the decent members of his profession, and thoroughly unrepresentative of the group. So organized purchasing, in its relentless condemnation of commercial bribery, misrepresentation, and all forms of unethical dealing, has raised the plane of all business relationships and has set a practical standard for the measurement of the man.

The fifth major contribution of associated effort has been in the direction of education and training for purchasing. The first efforts in this field were in the nature of vocational-type courses. That sort of

education still serves an essential and useful purpose. Among its by-products has been the development of a substantial body of basic information and teaching material, available to all purchasing men. Even more important has been the logical sequel that universities and colleges of business administration have taken note of this activity and that more than sixty of the leading schools have incorporated a study of purchasing into their general business curriculum. Their students may never become purchasing executives, but they will come into positions of management with a fuller appreciation of the purchasing function and its potentialities for profit and service. The importance of such an attitude can not be overestimated.

High Performance Standards

The sixth contribution, perhaps closest to the personal interest of every individual purchasing man, is a better recognition of the purchasing function and of the purchasing agent's position, which will enable him to do a better job for the company and at the same time to enjoy the dignity and prestige and the position in his organization which is his due. That, of course, sets up high standards of performance for the purchasing executive to meet, but it is a challenge that every purchasing man worthy of the name will welcome, and it is a far more desirable situation from every viewpoint than the necessity of dissipating his energies that should be spent on procurement in battling for the elementary prerogatives of his position.

The most dramatic example of such recognition came in the War Production Program during the world conflict just ended. Ordinarily, purchasing exists as a service function to implement production. But so long as this philosophy prevailed in our national effort, the program bogged down. It was not until government realized that its role was that of procurement, and that the whole productive machinery of the nation existed to implement that purchasing program—not until it was headed by a man whose qualifications were those of a purchasing executive, surrounding himself with men who knew how to organize and administer a purchasing program, and backed by competent purchasers and material managers in thousands of plants throughout the country—that the War Production Program really

started to click and made the fantastic wartime production quotas a practicable goal. The association as such, and scores of men drawn from the ranks of the association membership, contributed mightily to this achievement. They earned national recognition, and in the management councils of hundreds of plants that recognition has been reflected in greater prestige for the purchasing executive.

Now it is obvious that every purchasing man, whether affiliated with the association or not, is the beneficiary of all this progress and development. Each new contribution to purchasing knowledge and science is his to use. Every time a purchasing agent is elevated to the vice presidency or to the board of directors of his company, it makes the purchasing job more important in every other company, even if it be half a continent away. Every student of business management who enrolls in a purchasing course enhances the standing, and the understanding, of the purchasing department and the purchasing function in every industry. Each additional supplier who addresses his advertising message and his marketing policy to purchasing agents in the journals of their profession, underscores the essential importance of the purchasing assignment. These effects are automatic and universal.

Multiplying Benefits

It is equally obvious that these benefits are doubled for the man who identifies himself with the association of his calling, and that they are doubled again for the man who actively participates in the program of that association and makes his own personal contribution, to the extent of his capabilities, toward a continuation of this progress.

In the science of language, the meaning of words is determined by usage, and not by arbitrary dictionary definitions. These meanings change as their subjects develop and change. The purchasing agent of today is not the same as the purchasing agent of forty years ago. What is a purchasing agent? Every individual purchasing man is writing the answer to that question in his daily performance of the purchasing job. In some cases we may not be altogether proud of the answer, or satisfied with it. But we also have the privilege of writing the answer in terms of the composite character, competence, and ideals represented by association membership, which set the highest standard for all purchasing men.

Today we are turning a critical page of industrial history, entering a period fraught with even deeper responsibilities and more searching challenges to purchasing men than yesterday's wartime test. What are some of the specific problems?

First, in the squeeze between higher costs and competitive selling at or close to pre-war price levels, more efficient procurement must make its contribution to make survival and continued profitable operation possible. Purchasing shares this responsibility with production and distribution. Purchasing is a part of distribution, viewed from the other end of the transaction. Management looks to purchasing, because of its wartime record of accomplishment, and because these other functions may have come closer to the ultimate of economy.

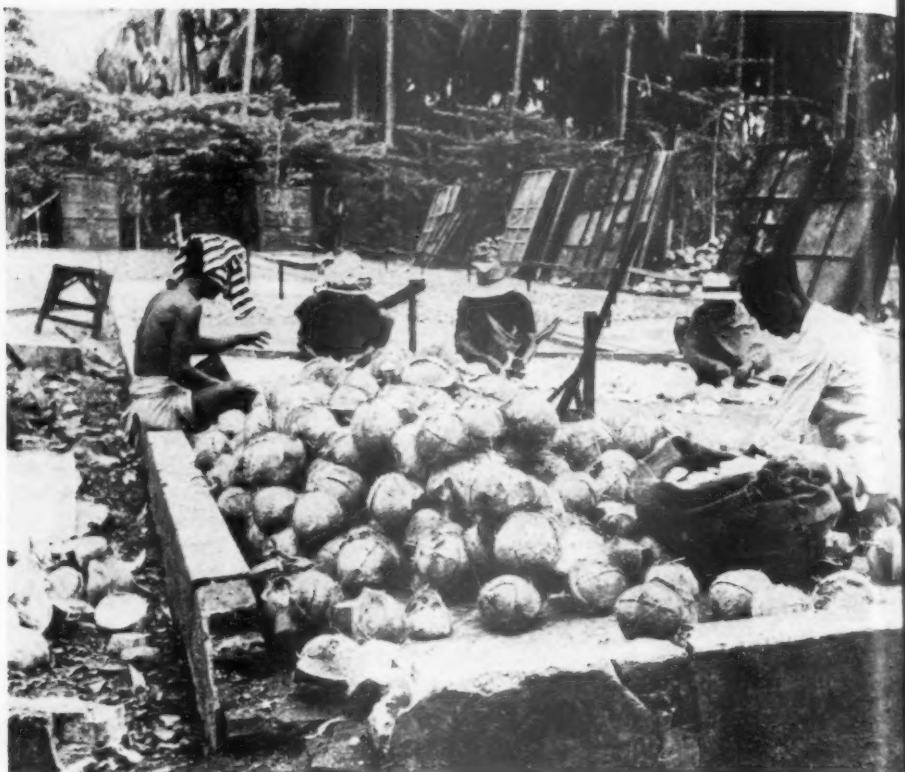
Responsibility and Opportunity

Secondly, fifty years of technical progress have been crowded into the past five years under the spur of wartime necessity. The application of that progress to peace-time products and production, the acceptance of the thousands of new materials and products now available, is largely a responsibility of purchasing agents. It is their problem to search out, to sift out, and to try out those new items that give promise of advantage to their companies, to recommend and to battle for their acceptance.

Third, we have the assurance of no less an authority than Wendell Berge, Assistant Attorney General of the United States, that the maintenance of the competitive system of enterprise in this country depends primarily on the vision, courage, persistence, and conscientious competence of the purchasing men in industry. The alternative is regimentation and governmental control, whether government wants it or not. There are plenty of men in government who heartily support the competitive system as a way of life and industry for America, but that system must be expressed in terms of purchasing practice or it cannot prevail.

Would any purchasing man care to face this threefold responsibility alone? His prospects of success would be dim indeed. But 9,000 purchasing agents working together, with common objectives and the strength of united effort, have it within their capabilities to meet the challenge of the postwar world as brilliantly as they overcame the problems of a world at war.

REOPENING SUPPLY LINES FROM THE FAR EAST



Rapid commercial rehabilitation program is under way in liberated Pacific areas to restore our sources for rubber, tin, copra, and coconut oil

By A. N. WECKSLER

DURING the years of war, our industry has been deprived of basic raw materials from the Far East. We were thrown on synthetic rubber, and had to squeeze down on our use of tin when the Malay Peninsula and the Dutch East Indies fell to the Japanese. We had to find substitutes for jute and hemp fibres. Our whole pattern of supply of fats and oils was disrupted.

In some cases, we were able to develop alternate sources of supply, substitutes, synthetics, or we increased our production. Shortages were compensated for by strict conservation practices. The need for materials was of prime importance, and the cost was secondary.

Raw Materials Needed

With victory, industry is recasting its approach. The primary emphasis of peacetime procurement of raw materials is based on the factors of quality and price.

Where the wartime substitute has been satisfactory, and the price has been brought into line with the natural product, there is no pressure for the return to the raw material. Synthetic fibers will compete successfully with natural bristle. Syn-

thetic resins will compete with the natural. The synthetic rubber industry will continue to operate at a considerable rate, possibly supplying as much as 50% of our total rubber use.

Notwithstanding the development of substitutes, there has been considerable commercial pressure to open up our lines into the Far Eastern areas as quickly as possible for those materials where the natural product is still in heavy demand.

Requirements for tin present a major problem, with shortages in ore likely to continue for some time. The fats and oils picture is particularly distressing, as there is a decided world shortage that can be rectified only by returning the Philippines and the Netherlands East Indies to production. Supplies of natural rubber are anxiously awaited by manufacturers who would like to improve the quality of their product.

Problems of Recovery

This pressure on the part of our industry finds its counterpart in the need for the producing areas to reestablish their exports and rebuild their economies.

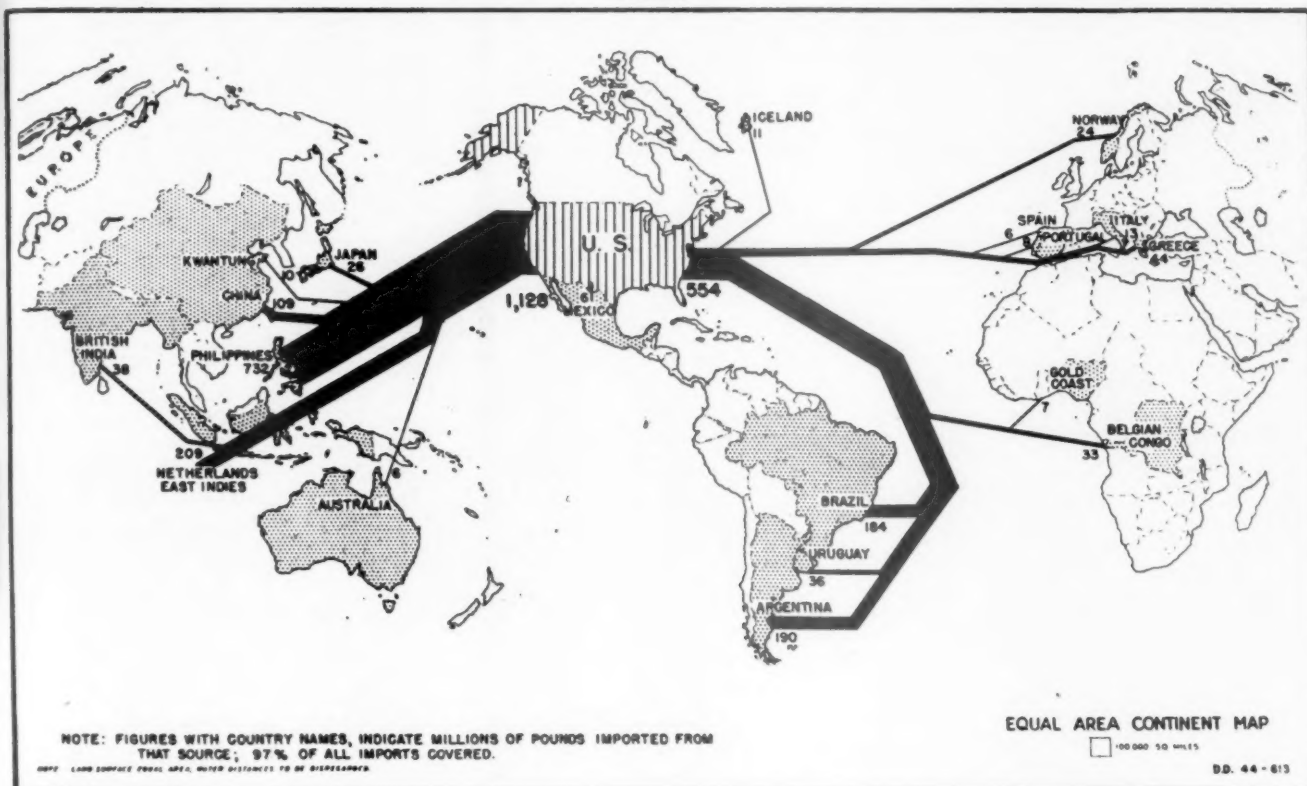
The problems encountered follow the now familiar pattern of any country ravaged by modern warfare. Producing facilities are disrupted, transportation facilities are destroyed. There is no merchandise available in the countries to serve as trade goods. Port facilities are in demolished condition. There is a large measure of inflation. Our military forces in their role as occupation troops utilize local labor for their own service needs, such as military road construction, road repairing, bridge building, etc.

Best example of the physical difficulty of reconstituting our trade with a Far Eastern area is the problem encountered in the Philippines. The copra and coconut oil supplies from the Islands hold the solution to our own—and, in a large measure—to the world's fats and oils supplies. Our efforts in the Philippines are not hampered by economic controls exercised by other nations, such as the British control over the Malayan Peninsula, and the Dutch control over the Netherlands East Indies.

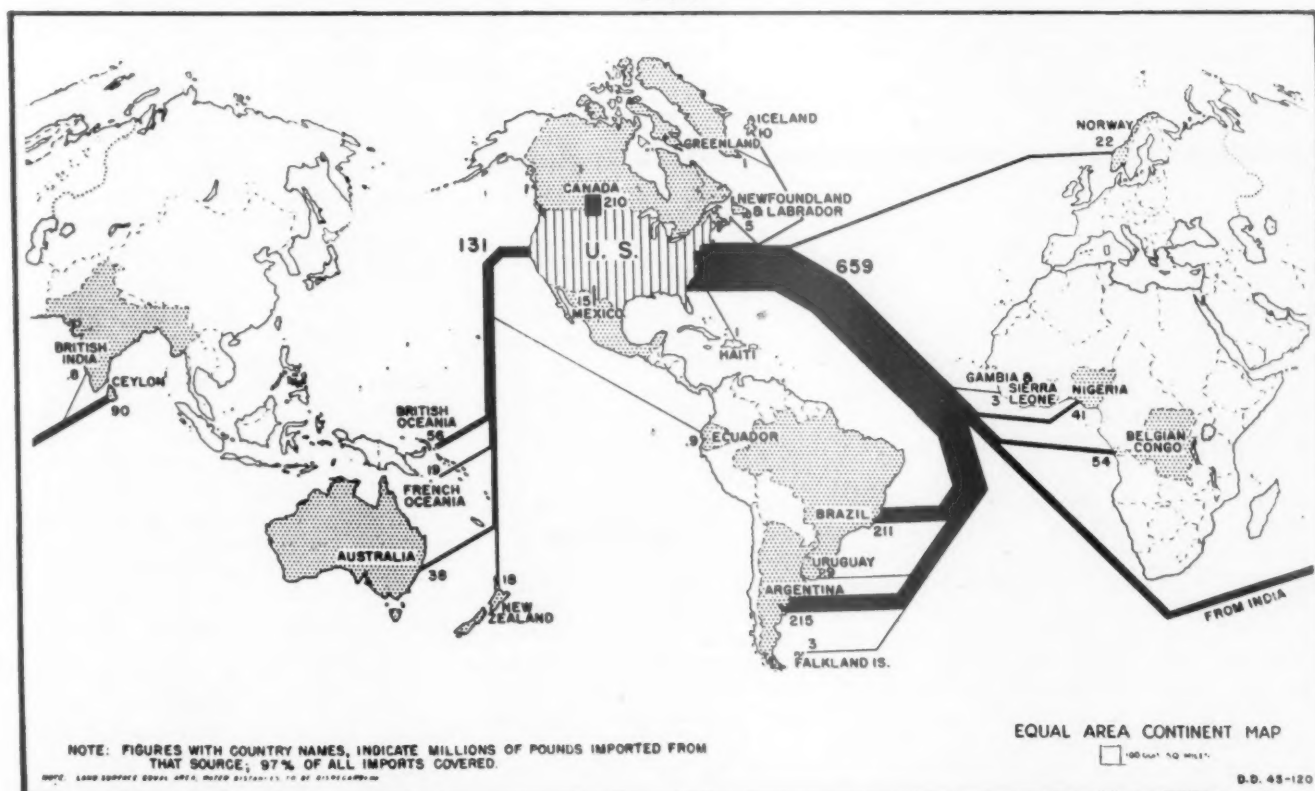
In fact, our commercial entrance into the Philippines was comparatively simple. The native popula-

UNITED STATES IMPORTS OF FATS, OILS, AND OILBEARING MATERIALS, IN TERMS OF OIL, FROM MAJOR SOURCES

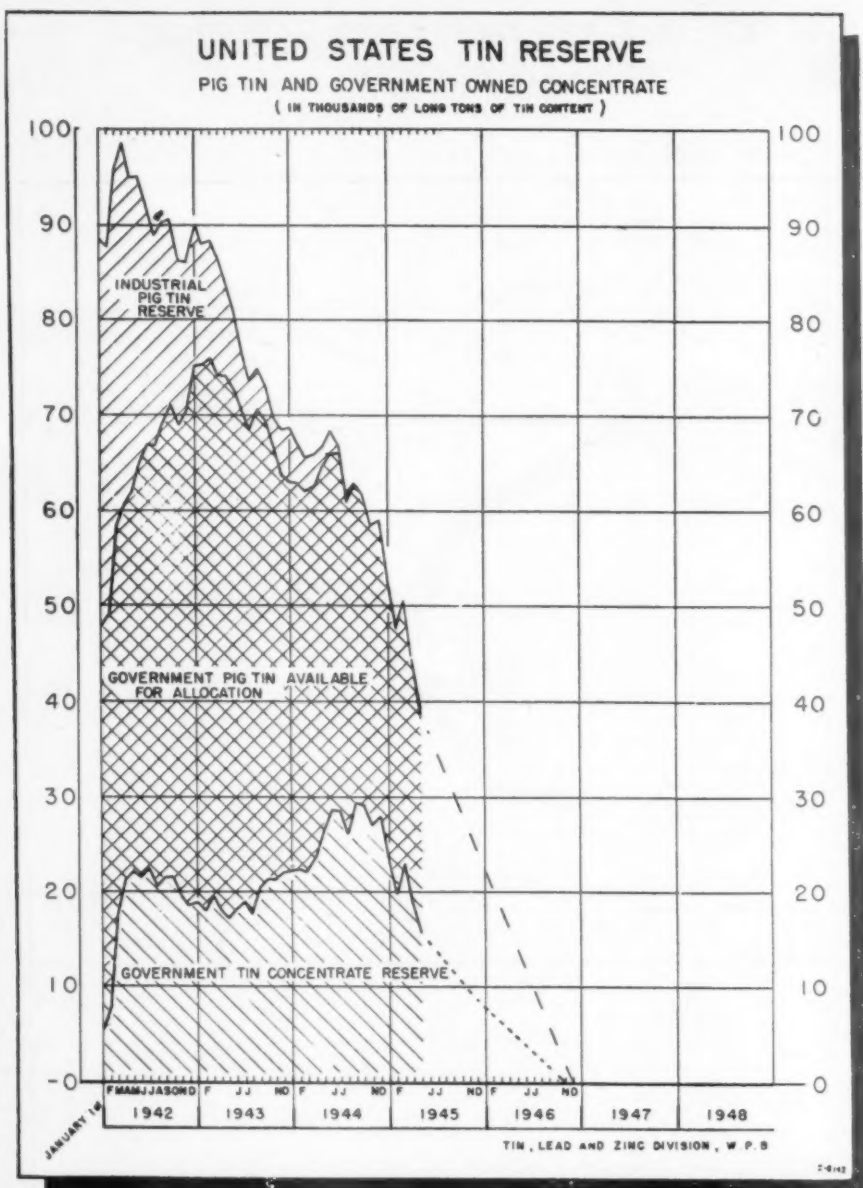
1940



1944



A comparison of the import-flow maps from 1940 and 1944 graphically emphasizes how our major sources in the Pacific were completely cut off in war years, with no adequate replacement from other areas.



tions welcomed us. They were anxious to reestablish themselves economically, and they have implicit faith in the economic stability of the United States, and a high regard for U. S. businessmen.

Efforts to advance our commercial interests and the economic stability of the Philippines were made as our armed forces secured the Islands.

Most recent reports from the Islands indicate that the economy of the Philippines is flat on its back. It will take two years to restock shelves with merchandise. This is important, as without goods there is limited incentive to trade copra. In areas of Army occupation, the tendency is for the men to work for the Army, as they receive a meal, plus pay—and are able to acquire enough food for the family; women wash clothes.

In areas away from occupation, Filipinos are more inclined to examine the possibilities of marketing copra, as it is the only cash crop available to them.

The Army is repairing some railroad lines from Manila into the interior; some lines into the major copra-producing areas. Army policy is to reconstruct transportation facilities, bridges, etc., whenever it is of military importance. The Army has been liberal in its interpretation of what is important to them.

The Manila railroad has an adequate supply of rolling stock, and a sufficient number of steam locomotives.

In addition to the Manila railroad, there are short stretches of railroad on Cebu, Panay and Mindoro Islands. These are at least in partial operation.

Pre-war there were 1,700 inter-island boats—disposed of by the Japs. The Army has given the War Shipping Administration a number of lake-type steamers and small boats to reconstitute inter-island transport.

It is likely that the Army will permit use of the many small landing craft, capable of carrying from 30 to 80 tons. These would be ideal for operating in rivers and along shores of islands where there are no piers. There are large numbers of small sailing vessels still in the islands, and these can be used to carry copra.

Foreign Economic Administration is sending considerable shipments of trade goods to the islands. Also trucks for transport are en route. Trucks will also be purchased from the Army. Costs of operating trucking lines will be such as may put a distinct pressure on the price ceilings in the United States.

Government Assistance

Basic shortage of bags for individual farmers to store copra and bring dockside is being cured by shipment of new bagging from India and reclaimed bagging from U. S. Scales and scoops required in the trade are also en route.

Foreign Economic Administration is backing up the Copra Export Management Company Inc. (CEMCO), and the latter organization is working closely with the Philippine Abaca Management Corporation (PAMCO), a similar corporation developed to stimulate output of abaca. This means that there is a fairly close working arrangement toward the end of arranging transportation, shipment, trade goods, etc.

The numerous difficulties which have been encountered in the Philippines are along the way toward solution, and it is estimated that early in 1946 the shipments of copra to the U.S. will be resumed in substantial volume. It will be time, possibly years, before the pre-war volume can be reached.

The economic road into the Philippines is being duplicated in other Far Eastern raw materials sources. Similar physical and economic problems will have to be bridged to restore the supply of tung oil from China, palm kernel and coconut oil from the Netherlands East Indies.

Tin Supplies

Reestablishing the supply of tin presents an equally perplexing

problem, complicated by the fact that the major producing areas are controlled by other nations.

A War Production Board report indicates that the United States military forces in the Far East have been requested to conduct a thorough search for stocks of pig tin in China, Japan and other areas from which tin might be available to us.

Although there have been numerous rumors about tremendous stocks of pig tin being available at the Penang and Singapore smelters and at other points, no verification of these rumors has been received.

The Japanese smelters must have had an ample supply of concentrates from Thailand, where the tin properties were reportedly seized intact, together with that produced from manual operations in Malaya and the Netherlands East Indies. Perhaps some of the concentrates from the latter areas were smelted locally, as the two principal smelters in the Federated Malay States have been reported found in good condition. Japanese production was in excess of her needs, as she was able to supply Germany and other countries with pig tin.

As soon as Malaya, Burma, Thailand and the Netherlands, East Indies are reoccupied, every effort will be made to rehabilitate properties. The British and the Dutch both have missions en route to their respective tin producing areas to appraise the damage and ascertain what steps can be taken to put the properties into operation at the earliest possible moment.

Labor and Equipment

During the first year of reoccupation, there will be some output of tin concentrates derived from manually-operated Chinese-owned mines in Malaya and from the Dutch-controlled manually-operated mines in the Netherlands East Indies. How much will depend upon the availability of the Chinese labor force.

If the hundred-odd thousand laborers formerly employed are widely dispersed, it will take some time to reassemble them. Those properties partly mechanized, using electric power or diesel-engine driven gravel pumps, monitors, etc., will probably require electrical repair parts, motors, diesels and pumps.

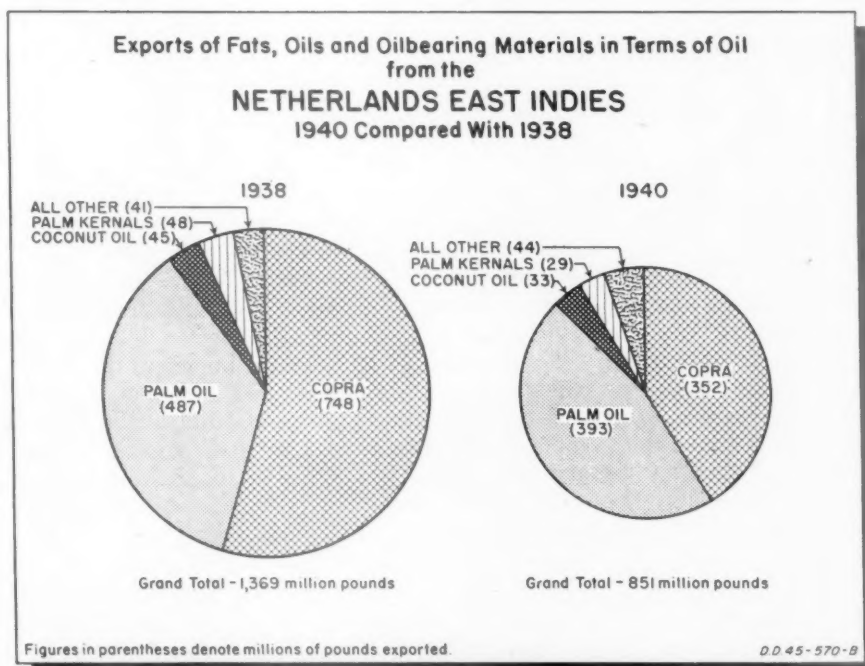
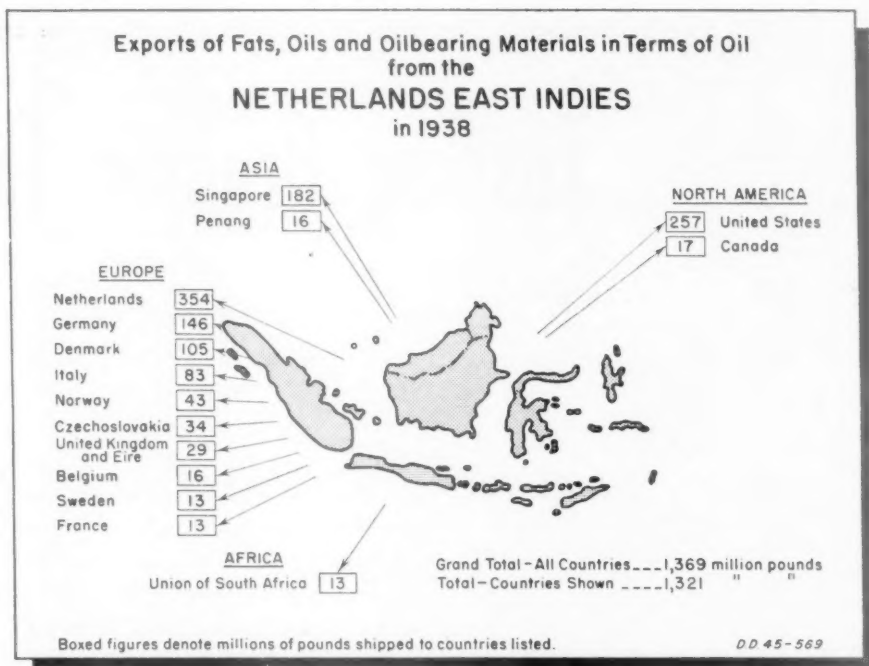
The last stage will be the reentry of the dredging enterprises into production. This phase will take a considerable period, as many of the

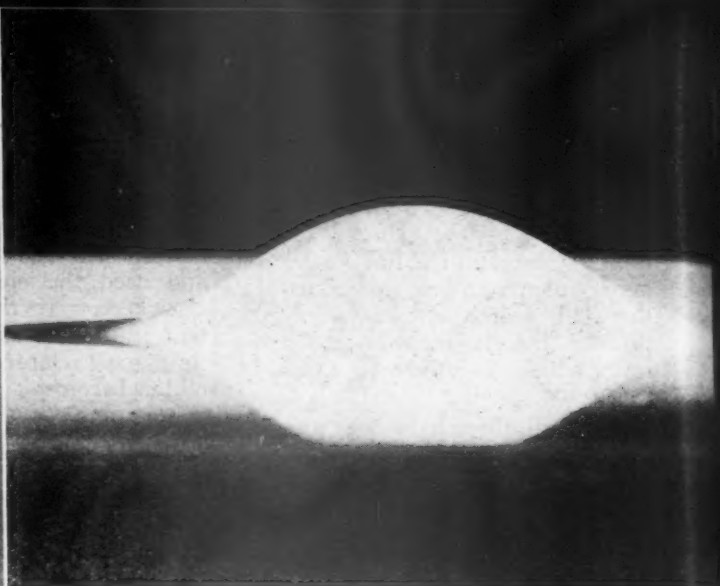
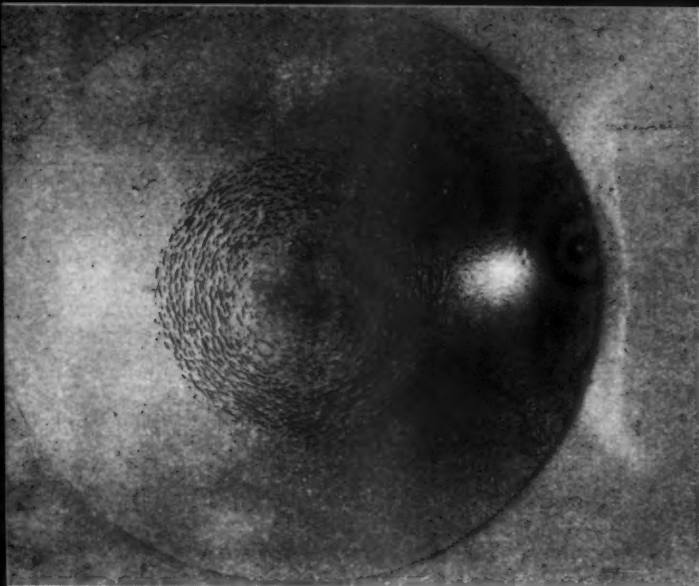
dredges are known to have been damaged. From reports that have filtered through, it appears that the Japanese have dismantled the superstructures of these damaged dredges and shipped the scrap back to Japan, and used the electrical equipment elsewhere. If this proves to be true, then a considerable period of time must elapse before dredging output becomes a factor in the total output.

Production from dredges may rise very slowly, and it may take many years before it reaches pre-war figures, especially in Malaya.

In fact, the output may never again reach that level.

The conditions involved in the crude rubber supply picture repeat the pattern indicated in the foregoing. The problem of processing equipment is not involved, but there is the question of transportation, labor and trade goods. Estimates as to the amount of crude rubber which can be obtained vary from 350,000 tons to 750,000 tons within the next 12 month period. The supplies have to be shared with other nations, cutting into the tonnage which we can expect.





This sample, checked for flexibility, failed due to small circular cracks—the sign of a good finish.

Testing Organic Finishes

By P. W. PROUTY

Westinghouse Electric Corporation
East Springfield, Mass.

S ELECTION of a suitable protective or decorative coating depends upon many variables, so while no definite plan or set of rules can be universally adopted, some considerations are basic and can be applied to all jobs. There are several hundred more materials which can be used for good finishes, even with present restrictions, than were available at the end of the last war. However, neither the paint manufacturer nor the user is equipped to handle many of these immediately, and conversion may be necessary in some instances before they are commercially available.

Any material or mixture which will flow so that it can be spread upon a surface and subsequently dried, forming a thin solid film, can be classified as a paint. There are five classes of modern paints: oil, varnish, synthetic varnish, lacquer, and water emulsion paints. An enamel is formed by dispersing pigment particles into these paints to obtain the desired colors.

Composition and Properties

Paints as they have been known for centuries are really oil enamels. They are mixtures of drying oils,

Most finishes are still selected by the method of trial and error, but a good deal can be learned in advance by comprehensive testing of samples for the desired properties

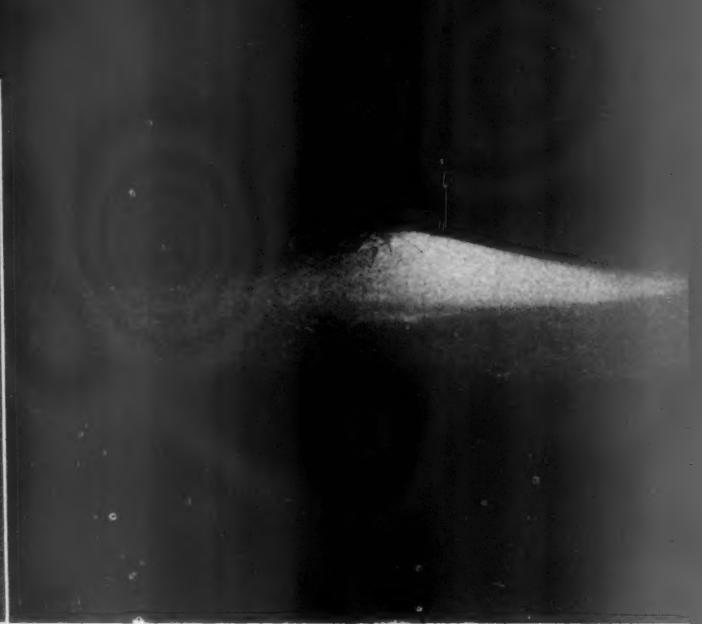
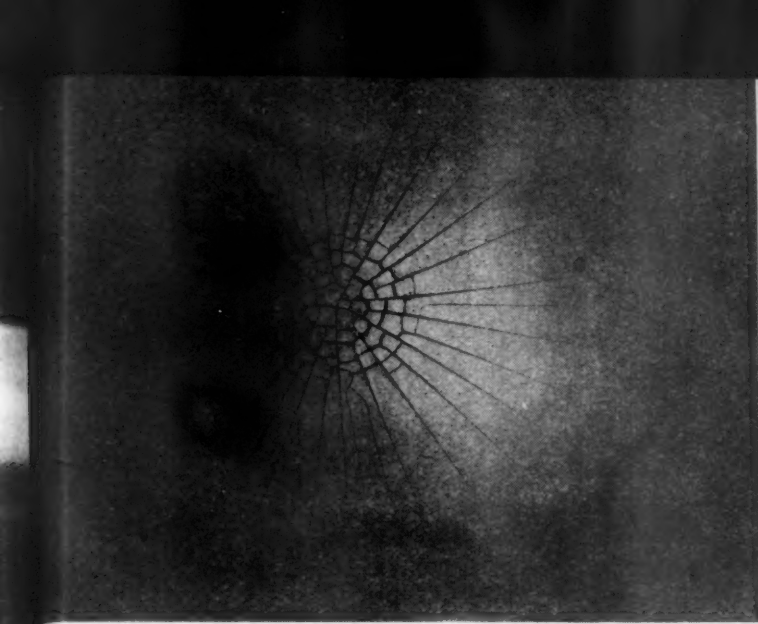
driers, pigments, and solvents or thinners. The natural drying oils such as linseed and tung, are all found to be unsaturated, straight chain compounds containing 18 or more carbon atoms. On oxidation with partial or complete saturation, the oil jells, producing hard, clear, rubbery or leathery films having good durability and adhesion to most metals. They are quite inert and resist the action of the elements quite well. Boiling or blowing to partially oxidize improves the flexibility, gloss, and speed of drying. Blowing resists the acidity, and more recently hydrogenation and even separation of the drying oil from the edible and non-drying portion have been carried out to improve the product.

Resins are hard, horn-like and amorphous solids. Natural or fossil resins are the dried remains of pools of plant gums or saps. Age,

heat and pressure have removed the more volatile or more active portions, leaving the durable resin. Films from the solution of these resins in oil have much improved hardness, brilliance, water and alkali resistance and acid resistance. The result has been an almost complete adoption of varnishes as a basis for decorative, protective coatings.

The greatest improvement in varnish products came with the introduction of synthetic resins. The first to be used probably was ester-gum. This was formed by treating ordinary resin with glycerin to form a pale, harder, stronger resin giving better moisture resistance than varnishes made from most of the usual fossil resins. The second resin was probably the use of phenol-aldehyde, sold under the trade name of Bakelite. This was done in 1909. Since that time several thousand plastic materials have been tried. These include both the thermosetting and the thermoplastic type, and range from very hard resins to the soft, elastic or plastic materials.

Synthetic resins may be modified by either natural or other synthetic resins to obtain the desired proper-



If a finish is brittle, it will fail in a series of star cracks when subjected to flexibility tests.

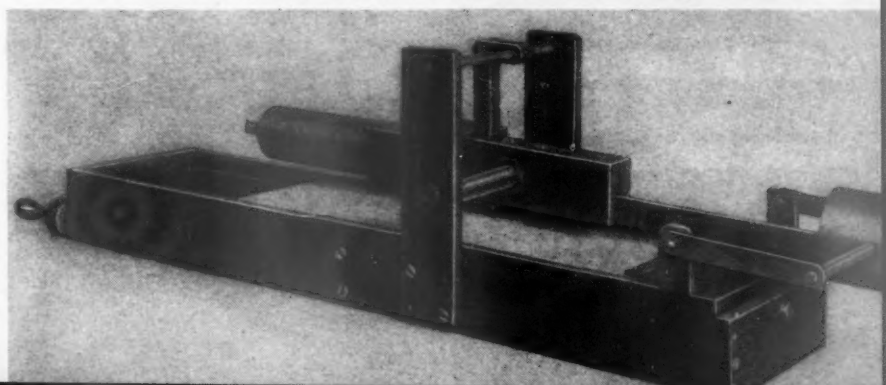
ties. In some cases the final polymerization or condensation of the resin or the co-reaction of several resins occurs at the same time—at the time of curing the film. In some cases they are completely reactive and dissolve in suitable solvents for use as pure varnishes. The trend is definitely toward mixtures which do not contain any oxidizing materials, the reason being the high speed of curing. It is only necessary to drive out the solvent and cure the finish by heating. The finishing time on some isolated high volume products has been reduced to a few seconds by this development. Adoption of synthetic enamels in all cases has resulted in improved quality, reduction in processing time or reduction in repairs and rejects. Another and probably the most important advancement due to the use of synthetic resins is that many durable pale resins are now available which do not darken during the curing cycle or during long periods of use even in warm locations. This has made possible the use of brilliant light colors and white, notably refrigerator finishes, having five to six times the durability that was possible ten years ago.

At the present time the most important resins used for finishing enamels are, in the order of their importance; phenol-aldehyde, alkyd, urea-formaldehyde vinyls, and acryloids. Among other resins now being brought into more prominent

The mar resistance, adhesion, and hardness of finishes are checked on this machine which utilizes a uniformly varying weight and a carboly cutter.



Flexibility tests are made with a standard Olson machine such as is used in the draw testing of steel.



use, either to modify or replace some of the above, are melamine, maleic styrene, polyvinyl chloride, superpolyamide resins, and allyl. These resins do not include many which may prove to be even more important in the near future but which because of their color, cost, or intricate application technique, are now available only as improved, protective coatings.

Phthalic acid glycerin resin is the usual alkyd, and there are many grades and characteristics available. However, any resin formed by the reaction of any poly-basic acid and any poly-acid alcohol may be classed as an alkyd. No one clear cut set of characteristics can be expected

just because a varnish is called by its synthetic name as an alkyd enamel or bakelite. The characteristics in each case will depend upon the grades of the resin, percentages used, methods of formulation, and, last but not least, the method of application.

General Principles

Assuming that the paint formulator has developed the optimum conditions for the varnish, a number of generalizations can be made. Alkyds improve the adhesion, water and electrical resistance of phenolics and reduce electrical surface creepage. Phenolics improve the hardness, gloss and mar resistance of alkyds. In combination with the additional modifiers and where decorative as well as protective finishes are required, they prove the most durable metal primers known.

Urea-formaldehyde is a very durable pale resin which solidifies by polymerization on heating. It does not discolor at the curing temperature required, will withstand some excess temperature for a long time and ages without fading or yellowing appreciably. This thermosetting plastic provides a very high speed finish. In combination with suitable modifiers it makes possible pastel colors or a brilliant white finish. It is the basis of all modern refrigerator and washing machine finishes.

Melamine resins improve the coatings having urea-formaldehyde base by improving the gloss, mar resistance, grease resistance, alkali and moisture resistance, color retention, and adhesion to other plastics such as phenolics. The resin apparently is not good alone but as

a substitute for urea-formaldehyde. Its use will probably be confined to modifying other resin combinations.

Vinyls now provide the most chemically inert resins which we have. Unfortunately, they are readily attacked by most of the commercial solvents. They are thermoplastic. In the past the method of using these resins was to dissolve the pigmented resin chips into the most suitable solvents, usually ketones, to add plasticizers if desired, and to dilute to the desired consistency and apply. The solvent is then completely flashed off at room temperature or very low bake, and the film brought up to the setting temperature of the resin. A temperature of 250° for 12 to 15 minutes up to a maximum of 310° for a few seconds has been found to be satisfactory. Great care is required in cleaning and application, as the resin poisons easily if soluble metal salts can be formed at the interface. This causes complete lack of adhesion and eventual and rapid breakdown of color and film strength. It is satisfactory on good bonderizing but not on partial bonderizing nor on pulverant, or red type of bonderizing. Therefore, extra care must be taken in bonderizing to get good results.

Acrylic resins are most prominently known from the use of methyl methacrylate plastics. This is not the best acryloid for the paint film formulation which is still a closely guarded secret. I cannot tell you whether the acrylate is used alone or modified with other resins or plasticizers. The enamel is thermoplastic and was recommended for use at the operating temperatures between -50 up to 130°F. It has good adhesion to tin or brass.

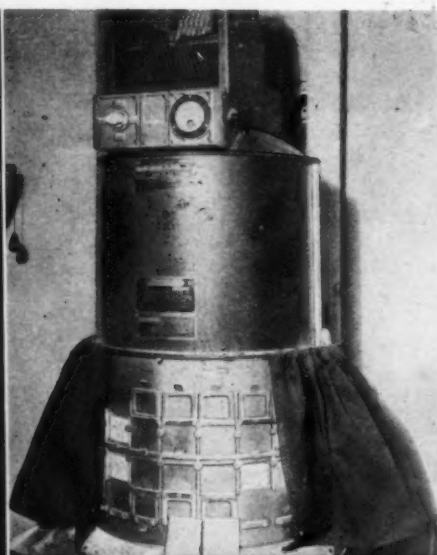


Impact tests are made by dropping a 65 gram, 1" ball on sample set at 60°; bend tests, by bending sample around $\frac{3}{8}$ " mandrel.

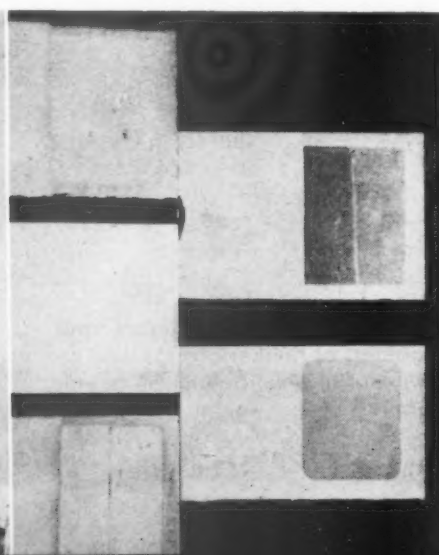
Bend test samples.



When it is necessary to check for ultra violet fading and recovery, the standard Fadeometer is used.



Fading test samples.



Nitrocellulose, although tough and horny, tends to become brittle and also has no adhesion to metal. Therefore, it is necessary to add suitable resins for adhesion, other resins to obtain gloss if desired, and plasticizers to retain flexibility. Resin solvents are not good nitro cotton solvents. Several completely miscible solvents must be used which are completely compatible and have the same evaporation rates, so that neither the resin nor the nitro cotton will precipitate during film formation. The rate of evaporation must be controlled so that moisture will not precipitate from the surrounding air.

Since the introduction of synthetic resins, present lacquers so-called may contain no nitro cotton and may be 100% resin solutions. This has resulted in enormous improvements in quality, but not to compare with the improved durability obtainable by the use of baking synthetic resin varnishes.

All of the recent improvements in varnishes and lacquers are most clearly noticeable in the decorative enamels. The pigments used must be carefully considered. All of the resinous materials used act as weak organic acids. The pigment materials may react with the acid changing the adhesion, flexibility, durability and life as compared to the value for the original varnish or lacquer vehicle. In many cases this can be used to advantage and improvements are made in the overall characteristics by the use of proper pigments in the enamels.

Selection of Finishes

Finishes are still selected by the good old fashioned trial and error method. The color scheme is generally suggested by the artist or many times by the Sales or Engineering Departments. The final color and gloss are always compromised, depending upon the ability of the supplier to modify his product to take care of local manufacturing conditions.

For instance, the conveyor line cannot be changed to take care of one new item, and the supplier must try to produce the desired color and gloss under previously determined time and oven conditions. Experience is the greatest single factor in diagnosing and recommending the type of finish to be used. Care must be taken not to willingly test too many samples and become a development laboratory for the supplier.

EVALUATION OF RESULTS FOR FINAL SELECTION

Permanence	Rate	Factor	Value
Hardness	*	3	
Impact	*	10	
Bend		5	
Ductility		5	
Fading Ultra-Violet arc*		12	
Fading Darkness		2	
Aging		3	
Grease	*	25	
Water		3	
Humidity Continuous	*	14	
Humidity Intermittent	*	18	
Sum			-----
-	= % permanence		
10			
Appearance			
Color	*	30	
Gloss	*	30	
Smoothness		15	
Uniformity		25	
Sum			-----
-	= % appearance		
10			
Workability			
Plant Handling		10	
Opacity	*	50	
Flow		10	
Repairability	*	30	
Sum			-----
-	= % workability		
10			
Final Rating—Value of Finish			
% Permanence x 50			
% Appearance x 30			
% Workability x 20			
Sum			-----
-	= Rating of Finish		
10			

* Material is rejected if any rating marked * is lower than 8. All ratings are given from 10 down to 0 on the basis that ten is perfect.

Of all the decorative protective coatings, by far the most popular and economically successful finishes today are based on urea formaldehyde. Lower temperatures and high speeds of bakes improve the manufacturing situation. Pale color and non-yellowing or fading characteristics make them invaluable for light colors. Melamines and some alkyds can be used as fortifying agents to improve certain characteristics such as grease or water resistance, without loss of color retention properties. Phenolics, alkyds, or natural resins can be used

on darker colors to increase or decrease flexibility, mar resistance and adhesion so that enamels can meet almost any set of requirements that can be designed. Where color stability is of secondary importance or where dark colors are to be used or there is no heating in service, alkyds or bakelite modified alkyds may prove superior to the finish based on urea formaldehyde. The most durable all around baking formulas now are probably the bakelite modified alkyds; the combination of several grades of alkyds or modifications with fossil

resins or oils produce very superior metal primer. However, the new synthetic varnishes are cheaper and give less trouble in the shop.

Pigmentation affects results both in finished coat and in primers. This, of course, limits the colors, coverage, and workability of the material. It is sometimes wise to get the artist to change colors to avoid loss of durability or color retention, or to avoid troubles in applying the paint. The best recommendation is not to change the present finish, unless speed of production, a change in manufacturing location, or a new and more rigid requirement demands it. Investigate and plan to take full advantage of the new modern synthetics on all new production lines as a means of conserving floor space, production time, and equipment, and also as a means to improve the durability, appearance, ease of application and overall economy.

Pre-cleaning

Pre-cleaning is the most important part of the whole finishing procedure; failure to clean properly accounts for over 90% of all finish failures, providing the finish was selected to take care of the service conditions. Work must be clean and dry. If the cleaning is not complete, invisible traces of oil, grease, finger marks, or cleaning compounds may remain on the surface. Even if it is clean, corrosion may start before the finishes are applied; unremoved dirt and grease may creep out of the pores during baking. All of these conditions are not usually seen, but they will cause failures, especially if high humidity or moisture is encountered

in service. Paints applied over these conditions may bridge them entirely, with complete loss of adhesion at that point, or they may absorb or react with the impurities to reduce the adhesion or to make the contact more brittle than the surface can withstand.

Metal which has been heavily swaged during forming cannot be cleaned by ordinary methods; in many cases even heavy pickling is not sufficient and the local swaged surface must be sandblasted. Shot blasting removes some of the dirt, but it also drives some into the surface. If the protective coating is to be effective, parts to be shot blasted must be free from oil, fatty acids and dirt. Sand or shot blasted parts must be protected until the finish is applied. You cannot sand blast a surface, send it into the shop and machine it, and expect to get out the machining dirt and cutting oil.

Testing

The paint salesman is a most optimistic individual, but usually in a vague and abstract way. Therefore, some method of comparison and selection must be made. We proceed as follows:

1. Limit the suppliers to those having experience with the problem.
2. Limit the number of samples from each to one or occasionally to two. We make it definite that we are not a development laboratory for the manufacturers.
3. Limit the number of samples to groups which can be carried simultaneously through all of the testing procedure so that each get as severe a test as all the others in the group.

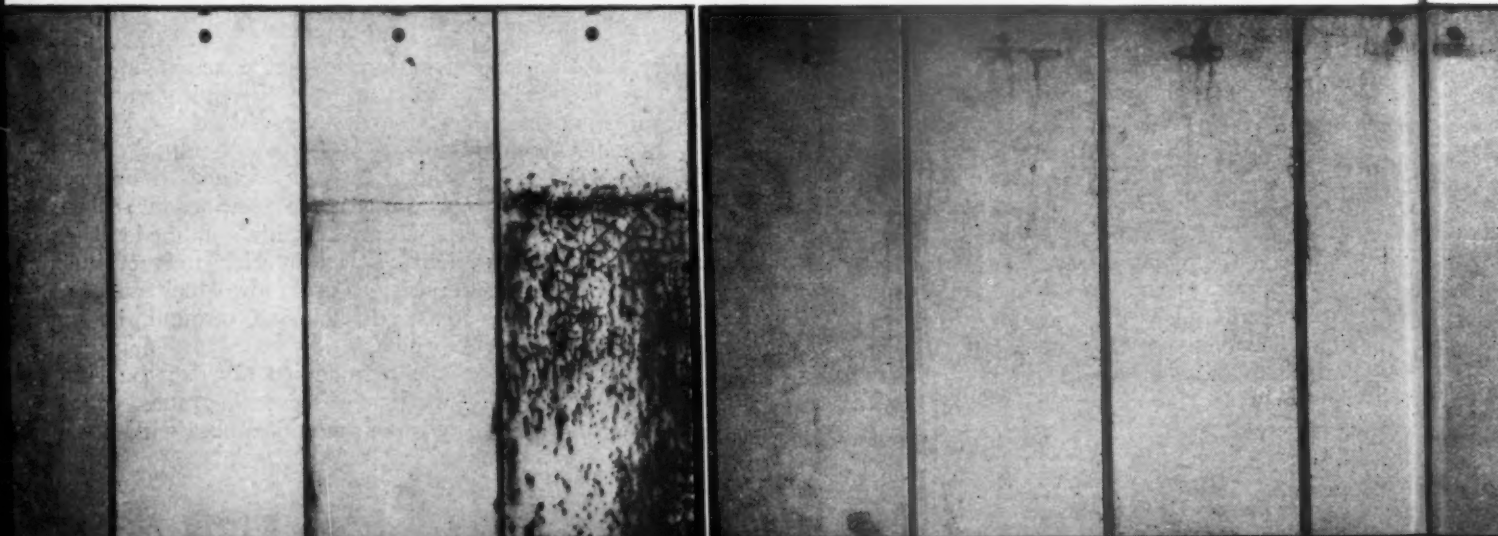
4. Isolate each characteristic and test for it. (A cycle test or uncontrolled test such as painting door handles or hanging parts on the walls of chemical laboratory or plating rooms does not give any comparison to the actual service.)
5. Where possible devise test methods which at least meet an arbitrary definition of the characteristic and give reproducible and repetitive results in numerical values without personal opinion or prejudice.
6. Where observation and opinion must be used make enough panels and record as many variables as possible so as to eliminate insofar as possible any personal factor.
7. Always put an identifying mark on each specimen, then mix the specimens at random, so that like specimens may or may not have consecutive markings. This helps eliminate the personal factor.
8. Tests are to be within the reasonable limits considering the application.
9. It is of utmost importance to work closely with the shop and get their opinions on any new finishing material or cycle. Better finishes are sometimes harder to apply and we must get their cooperation, to get good economical and successful production.

Making Test Samples

In making test specimens, dilute, apply and cure the material exactly as the supplier specifies. Vary the dilution or substitute diluent only if necessary to get an improved result. While using the material, check for such properties as per cent

Samples soaked in water at 100°F. A good finish may be soaked from 2000 to 4000 hours before failure occurs.

Continuous humidity samples after being subjected to 100% R. H. at 100°F. Good finishes should not fail within 3000 to 4000 hours.



solids, viscosity, viscosity as used, settling, uniformity, skinning, separation, and sprayed appearance. That is, check for dusting, drawing from edges, runs, sags, hiding power, and uniformity. After curing, check for blushing, blisters, and separation, seeding, pigment particles, wrinkling, silking, and uniformity of color and gloss. After the panels are made, it is necessary to let them season anywhere from one to three weeks if possible, since a panel that is two hours old may not stand up. On the other hand, no product gets into service that fast, that it is unfair not to let them stand. Another reason for seasoning is that it tends to even out the properties of the samples; a panel two days old will be many times more durable than one that is but a half day old.

On all the panels, mar resistance, hardness, adhesion and film thickness tests are made. The mar resistance, hardness and adhesion tests are made on one machine (Figure 1). The panel is placed on a plane table, which moves back and forth. Over that is a tool post with a cutting tool on it, which we can move and press down and cut into the painted surface. As this panel table moves, it moves the counter balance weight back and forth on the lever, which results in a uniformly varying weight on the cutting tool. The point at which the cutter starts to scratch the surface, is the mar resistance measurement. The point at which it starts to cut in and remove the top coat of enamel, is the hardness figure, that is the hardness of the film. It may be that the primer is softer and is supported a little bit by the top coat but usually the primer is harder and the first cutting point is the hardness of the surface

enamel. The point at which it cuts through to metal is what is designated as the adhesion figure. Now this also tells a number of other things about this panel. For instance, if the panel has a nice smooth cut, the material is uniform, and durable all the way through. If the fracture is brittle there is something wrong with the film. The cutter is made of carbonyl and is cutting into organic compounds and into very soft steel. In 12 years, it has been repaired only twice. Other people say that this is not true hardness, and I'll agree with them with no argument at all. But this does give a numerical value that can be read, and is reproducible without personal prejudice.

The flexibility test is made with a standard Olson machine such as is used for the draw tests of steel (Figure 2). It is rigged up to make the Errichsen draw, with a $\frac{5}{8}$ inch diameter ball, on a 1" ring. By this method, the depth of the draw at the point of failure and also the character of the break can be determined. If the character of the break is of little circular cracks (Figures 3 and 4) it is a very flexible and good material. If the draw is very short, maybe a couple of millimeters and then a star fracture occurs, the material is always brittle; this confirms the hardness test. The only time the test fails, is when the paint is more flexible than the steel itself. This is a much better way of testing than the usual test of dropping a guillotine onto a surface and then by observation, determining which panel holds up better.

When necessary, bending tests are made using a $\frac{3}{8}$ " mandrel (Figures 5 and 6). New modern paint testing laboratories recommend using a cone shaped panel. This results

in a very sharp radius at one end of the panel and a very large radius at the other, so that the point of failure can be determined by measurement.

On impact tests a 1" diameter ball which weighs about 65 grams is dropped onto a panel, which is backed up on a very heavy steel backing, thus there is no indentation of the panel itself (Figure 5). It is simply an indentation on the paint which is just like a glancing blow of a hammer that tends to rub as well as knock off the finish. If the material is brittle sometimes one drop will do it, but if it is very ductile it may take 500 or 600 before failure occurs.

Aging and Fading

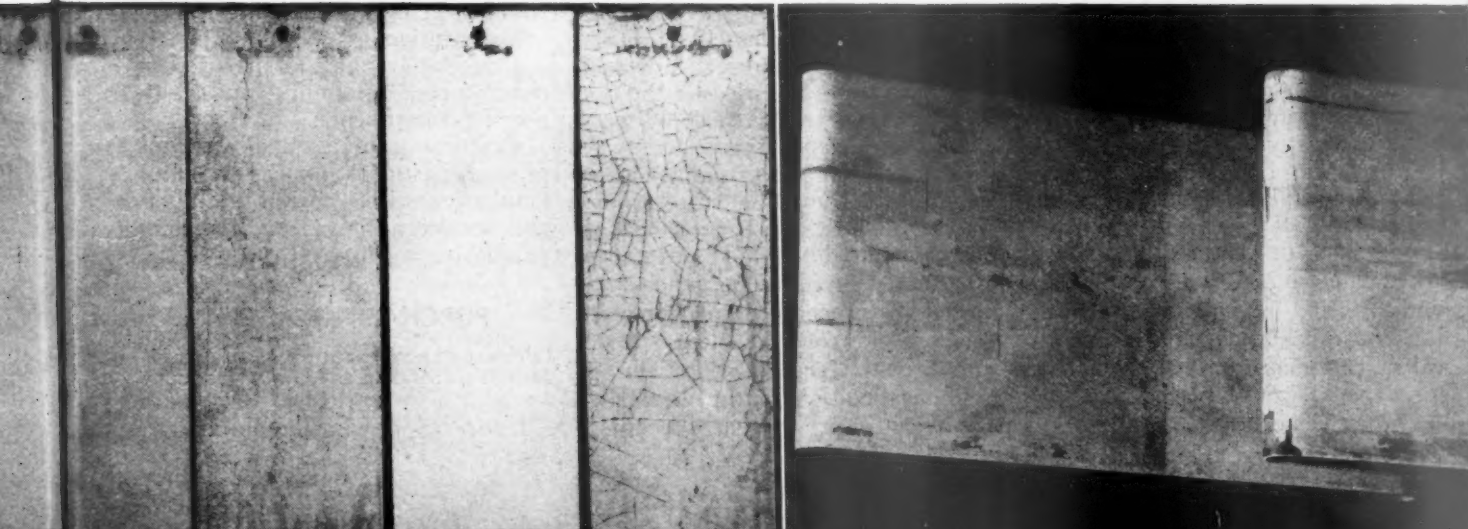
On certain types of finish, it is necessary to make heat tests and aging tests to ascertain if the finish will last for ten years on a refrigerator or on a high grade fan. If the panel is put into a low temperature 100-110 C oven, and baked for a certain length of time—200 hours for instance, the increased hardness and increased brittleness will indicate how the material is aging.

A great many times, it is necessary to test for ultra-violet fading and also for recovery. The regular fadeometer is the most reliable (Figure 7). Weathering cycles are inaccurate because the finish on a refrigerator, fan, or any other apparatus is never subjected to such treatment. There may be moisture, there may be water, there may be heat, and there may be light, but they vary in amount and intensity in different locations and on different samples. They do not all occur on each one. And when the test is

(Continued on page 372)

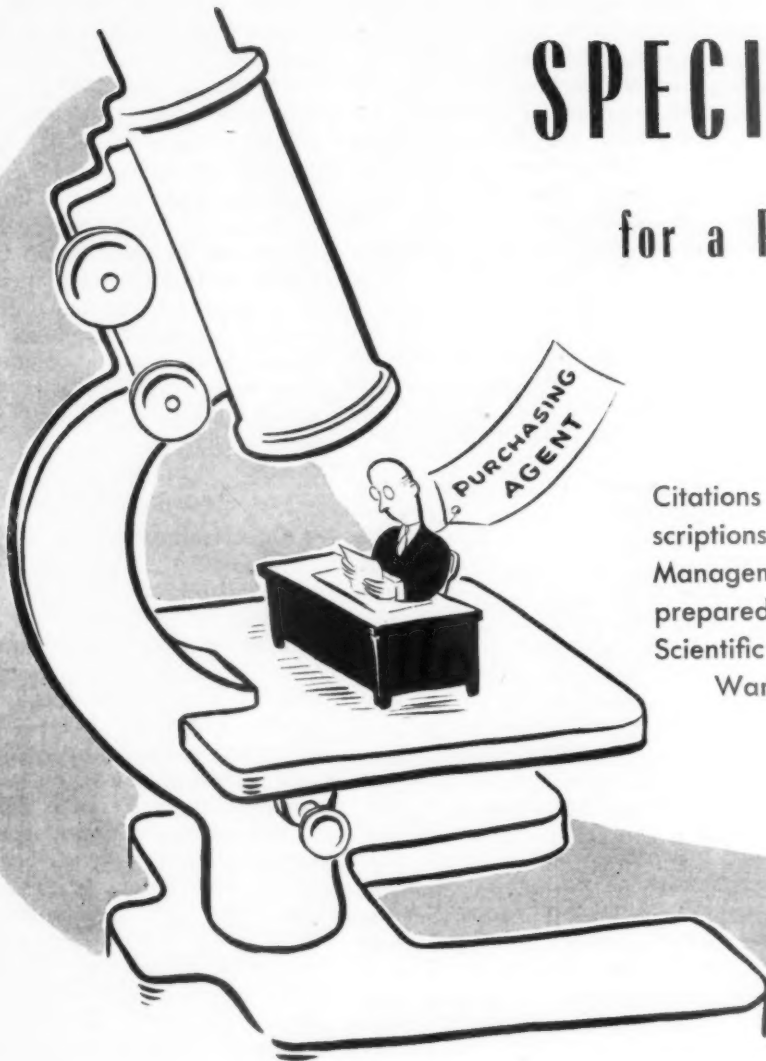
Intermittent humidity samples after being subjected to a cycle consisting of 16 hours in 100% R. H. at 100°F. and 8 hours in dry atmosphere at room temperature.

Grease test samples. These were covered with mixture of 50% oleic acid, 50% lard oil, and baked at 100°C for 200 hours.



SPECIFICATIONS

for a Purchasing Agent



Citations from the "Handbook of Descriptions of Specialized Fields in Management and Administration," prepared by The National Roster of Scientific and Specialized Personnel, War Manpower Commission

PROFESSIONAL PURCHASING

Professional skill in purchasing is acquired by academic training and practical experience, and is applicable and interchangeable in any field to the solution and administration of management problems.

The satisfactory administration of purchasing activities requires a high degree of skill in management, to delegate authority and responsibility when necessary and to direct the staff efficiently.

Purchasing competence at the executive level also involves the ability to analyze requirements and the production or market conditions which determine their availability and cost; and the judgment to translate those conditions into economical and prudent policies which best meet the company's needs.

Duties: The functional responsi-

bilities of a purchasing executive therefore include:

Determination and execution of the purchasing program, based on inventory control, subcontracting policy, selection of supply sources, development of new supply sources when necessary, cost analysis, and relative cost of self-manufacture as compared with purchase.

Determination and execution of purchase schedule, based on the operating program, record of past consumption and experience with vendors, special projects, and economic or market conditions.

Determination and maintenance of proper quality; based on standards and specifications, and supported by proper ordering procedure, selection of competent supply sources and adequate inspection.

Implementation of the above by maintenance of adequate records;

by coordination with other departments; and conformance to legal and governmental requirements.

Qualifications and experience most likely to lead to success as a purchasing executive:

College education; preferably a graduate engineer, with additional training in economics and business administration.

Practical training in the production, stores, accounting and engineering departments.

Practical training in all sections of the department; experience in, or familiarity with, clerical positions, and service as buyer and assistant purchasing agent.

II

PURCHASING AGENT

(Prepared by an executive of a large industrial corporation as job description for the head of a purchasing department)

Duties: Supervise the purchasing

of all materials and equipment in such manner as to obtain the highest quality under satisfactory price conditions; expedite all purchases to make certain that materials and equipment are received to meet production schedules; control priorities; supervise the preparation and submission of priority or allotment reports; assist in standardizing materials and in establishing specifications; establish efficient methods and record system for controlling purchases; determine when advance purchases can be made to take advantage of favorable market; and determine when lower prices and better deliveries can be obtained through large orders representing aggregate needs of the organization.

Qualifications: Executive ability; knowledge of economics, sources of supply, materials and buying procedure, general production requirements, business conditions, present-day governmental control of industrial purchases, office procedure, and commercial law.

III ASSISTANT PURCHASING AGENT

(Specification used by a municipal civil service commission in selecting an assistant purchasing agent)

Applicants must have had five years of continuous experience in purchasing or business management work or be a graduate of a college or university with specialization in public administration, commerce, law or engineering, and have at least three years of purchasing or business management experience, must have a thorough knowledge of the basic principles and techniques of purchasing; of the methods and procedures of purchasing, distributing and accounting for commodities ordinarily required by a metropolitan community; of market conditions, current prices, quality of materials, traffic procedures, law of contract, sources of specification and supply, business practices including accounting and budgeting methods; must have ability to maintain a co-operative relationship with vendors, to deal with the public and public officials in a courteous and pleasing manner, to handle complaints tactfully and without causing unnecessary criticism, to lay out work for others and get them to work together effectively; to keep records, make investigations and prepare reports, and to prepare specifications; must be tactful, honest, resourceful, of good intelligence and possess a keen purchasing and business judgment, skill and discrimination.

IV BUYER

(Used by a state civil service commission)

Duties: Under direction, to locate sources of supply and to place orders for the purchase of materials, supplies, and equipment, and to perform related work as required.

Examples: Interviewing salesmen; receiving and reviewing requisitions and making up specifications; assisting in the securing and examining of bids and in the awarding of contracts on specific lines of merchandise; following up orders; studying market conditions; keeping records of prices and sources of supply; handling correspondence.

Qualifications: Education equivalent to that represented by graduation from a standard high school with specialization in commercial subjects; successful and responsible experience in purchasing work; knowledge of market conditions, practices, contracts, and current prices; knowledge of the quality and value of various kinds of merchandise; knowledge of modern office methods; supervisory ability; judgment; initiative; good address.

V BUYER

(Definition from the "Dictionary of Occupational Titles," U. S. Dept. of Labor)

Purchases at the most favorable prices consistent with quality, quantity and other factors, raw materials, equipment, machinery, and supplies necessary for the operation of the particular organization (industrial plant, governmental unit, or public utility) in which he is employed (goods purchased are processed, consumed and used in the organization and are not purchased for resale at a profit); interviews selling agents of other establishments; draw up contracts and specifications, or approves contracts and specifications drawn up by technical workers; approves bills for payments; keeps records pertaining to goods purchased, costs, delivery, inventories and other items pertaining to purchases. Is usually required to have a thorough knowledge of the goods purchased and the work done by the organization in which he is employed. Specifically designated, according to material bought, as cotton buyer, tobacco buyer, or to locale, as factory purchasing agent.

VI MERCHANDISE BUYER

(Definition from the "Dictionary of Occupational Titles," U. S. Dept. of Labor)

Purchases merchandise within budgetary limitations in sufficient quantity and with sufficient appeal to warrant its rapid and profitable sale; assigns selling price to merchandise; initiates procedure, such as price reductions and special sales, to promote the sale of surplus or slow-moving goods. Specifically designated, according to type of merchandise bought, as floor-covering buyer, meat buyer, or toy buyer. (Merchandise purchased is resold and is not processed, consumed or used in the organization.)

VII STOREKEEPER

(or other title of head of stores division of purchasing department)

Duties: To be responsible for: carrying out the company's storage policy and maintaining high or low inventory accordingly; requisitioning, receiving, checking, handling, issuing, and distributing stock; and maintaining the necessary stock and inventory control records.

Qualifications: Executive ability; college education or its equivalent, with specialization in economics and commercial subjects; experience in purchasing department and in other branches of management, such as accounting or operations; knowledge of purchasing procedure, traffic procedure, and quality and value of commodities; thorough familiarity with modern storage and materials-handling methods; thorough knowledge of modern stores and inventory record-keeping procedures; and knowledge of government regulations on priorities and materials control.

VIII ASSISTANT STOREKEEPER

(or other title of assistant head of stores division of purchasing department)

Duties: Under direction, to assist the storekeeper in carrying out the company's storage policy; and to supervise the stores staff engaged in requisitioning, receiving, checking, handling, storing, issuing and distributing stock, and in keeping stock and inventory control records.

Qualifications: Administrative ability; college education or its equivalent, with specialization in economics and commercial subjects; experience in purchasing and other branches of management; knowledge of modern storage and materials-handling methods; and thorough familiarity with duties and procedures of each branch of the stores organization.

• WHAT TO DO ABOUT



KEEP IT SAYS CHESTER BOWLES

WE in OPA don't have any crystal balls. We don't pretend to know exactly what's going to happen during the next few months. But we do know that there are tremendous problems just ahead. We are looking very carefully at all the facts we can gather about present conditions and at the sad facts about what happened after the last war.

After the last war, Robert Brookings, who later set up the Brookings Institution, and many other Government and business leaders pre-

dicted that prices would quickly go down. A review of the statements they made then makes interesting reading. They kept saying that the big danger was that the bottom would quickly fall out of prices and discourage production. As a matter of fact, for a few months, while we were changing from war production to peacetime production, most prices did level off. This fooled Mr. Brookings and almost everyone else into thinking that the dangers of inflation were over. What few controls we had were dropped.

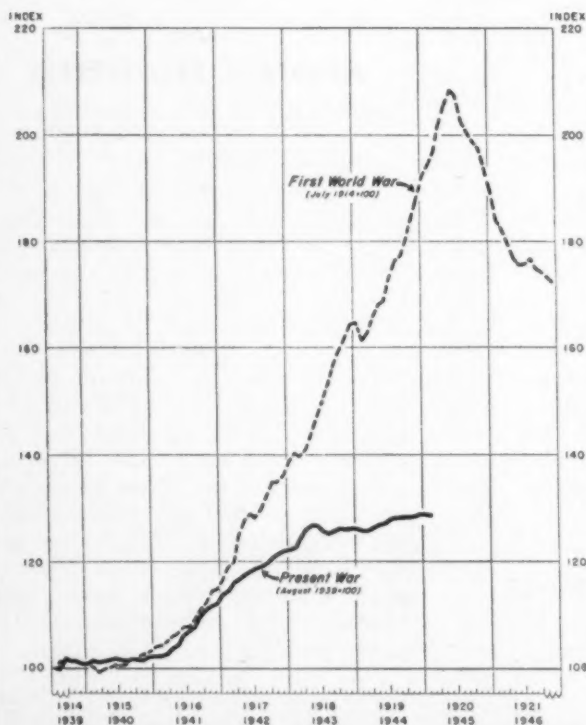
We all know what happened then. Beginning in February 1919, prices and operating costs began to rise more rapidly than during the war.

Consumers with wartime savings and incomes wanted goods. Soon industries began to bid against each other for limited supplies of raw material. All orders could not be filled on schedule. The fear of scarcities caused many firms to send in a rush of advance orders. In efforts to get larger shares, many firms placed orders with several suppliers for twice or three times the amounts they needed. This forced prices and operating costs up rapidly. It also gave a very false picture of demand and prosperity.

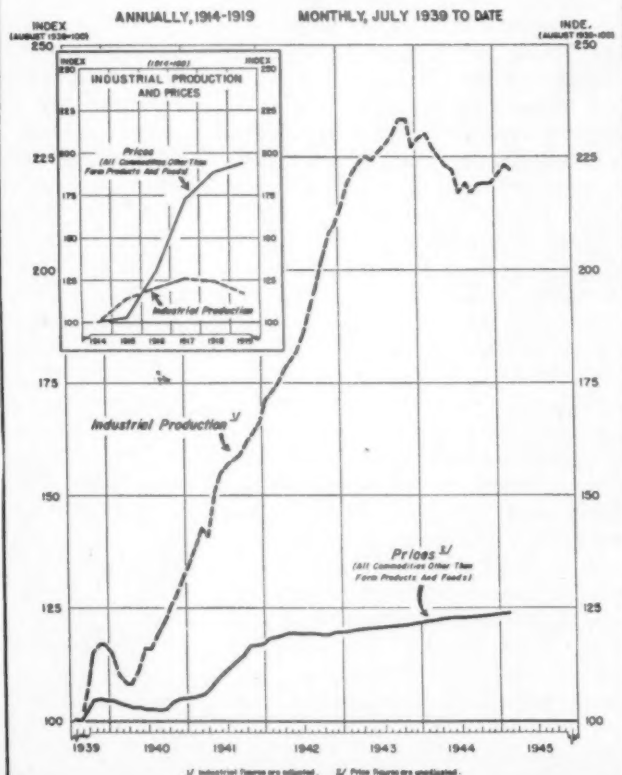
Forty-three percent of the total World War I rise in living costs came after the Armistice, and by

(Continued on page 128)

BLS COST OF LIVING INDEX
IN AND AFTER FIRST WORLD WAR AND IN PRESENT WAR
MONTHLY, JULY 1914 - DECEMBER 1921 AND AUGUST 1939 TO DATE



INDUSTRIAL PRODUCTION AND PRICES
WORLD WAR I & II



PRICE CONTROL •

DR. H. G. MOULTON SAYS

THROW IT OUT



PROSPECTIVE SUPPLIES AS COMPARED WITH REQUIREMENTS ^a

I. Mineral Raw Materials

Commodity	Stocks on Hand Times Monthly Requirements ^b			New Supplies Times Requirements (Monthly) ^c
	Owned by U. S. Industry	Owned by U. S. Govt.	Total in U. S.	
Aluminum ingots	5.7	3.9	9.6	4.1
Bauxite	10.2	27.6	37.8	2.6
Bismuth	6.4	15.2	21.6	2.0
Cadmium	2.8	1.8	4.6	1.2
Chromite:				
Refractory	4.6	12.7	17.3	1.7
Chemical	6.8	11.6	18.4	0.6
Copper	5.1	3.2	8.3	1.3
Lead	2.5	1.2	3.7	1.1
Manganese ore	3.7	10.9	14.6	1.0
Mercury	4.9	32.8	37.7	1.8
Molybdenum ^d	7.1	1.5	8.6	1.3
Nickel	1.1	0.8	1.9	4.5
Tin	2.6	4.2	6.8	0.9
Tungsten	2.9	32.0	34.9	2.3
Zinc ^e	3.4	1.4	4.8	1.1

II. Other Raw Materials

Cattlehides	6.4	0.0	6.4	1.0
Jute	4.0	9.4	13.4	0.9
Manila fiber ^f	0.3	0.5	0.8	(g)
Sisal and hennequin ^f	1.8	0.2	2.0	0.1
Wool-apparel	11.7	2.4	14.1	1.5
Kapok	0.7	3.2	3.9	(g)
Lumber:				
Hardwood	2.7	0.0	2.7	1.2
Softwood	1.9	0.0	1.9	1.0
Castor oil .....	...	...	5.8	0.0
High lauric acid oils .....	...	...	20.7	0.2
Linseed oil .....	...	...	6.7	1.6
Oiticica oil .....	...	...	8.5	0.0
Tung oil .....	...	...	3.4	(g)
Shellac .....	...	...	4.2	0.4

^a The basic data are from the War Production Board and the U. S. Department of Agriculture. Requirements are assumed to be 20 per cent above industrial consumption in 1940.

^b Supplies on hand assumed as large as on Jan. 1, 1945.

^c Basic data are average monthly domestic production and U. S. imports for 1944. Postwar supplies assumed equally as large.

^d Domestic consumption in 1940 assumed to equal U. S. production of concentrates less exports.

^e These data are based on official estimate for 1940 domestic consumption.

^f U. S. consumption in 1940 assumed equal to imports.

^g Less than 0.1.

EXCEPT for the setting of initial prices on products whose manufacture was suspended during the war, continuation of price control is found to be impracticable. Without wage stabilization and without rationing, the government is not in a position to hold the price line.

War experience in this and other countries has demonstrated that the control of wage rates, the most important element in costs, is indispensable to price stabilization. In the light of the recently announced policy of granting or permitting wage rate increases in order to sustain purchasing power, effective control over prices has been lost. If wage rates rise the OPA will be forced to review prices all along the line.

The new policy of requiring distributors to absorb increased costs at the manufacturing level greatly magnifies the problem of price control at the retail end. Here again war experience indicates that rationing is essential to the control of retail prices where there are acute shortages. But it is apparently recognized by the authorities that a rationing system for durable consumer goods in peacetime would not be tolerated.

Turning to consideration of factors which might affect prices in the absence of control, the study points out that the country is faced with surpluses rather than shortages of most foodstuffs and raw materials. Agricultural production and supply are, or shortly will be, so large in all except a relatively few lines that extensive price declines will take place unless artificially supported at

present levels. Furthermore, the government is in a position to check speculative buying by releasing its own holdings.

Mineral raw materials, with few exceptions, will likewise be ample. Stocks on hand, plus potential production, are adequate to meet any prospective demands. The danger of inventory speculation is therefore slight, and here also the government is in a position to check any speculative tendency by releasing some of its own accumulated supplies.

Mass Production

Industrial capacity in general is large enough to permit production schedules very much above those of 1940-41. Supplies of a wide range of semi-finished and finished products can thus be increased rapidly, and in most lines there would appear to be no occasion for consumer scrambling for short supplies.

Acute shortages are found chiefly in the consumer durable goods field. The danger of sharp price advances, however, is safeguarded by the fact that as much as 80 per cent of the production is in the hands of some twenty companies which have consistently exemplified the principle of mass production, low unit costs, and low prices to consumers.

Cost-Price Ratio

The greatest potential inflation force is the powerful movement for higher wage rates. If wage rates generally are increased with a view to maintaining wartime purchasing power after work schedules and output per man have been reduced, costs will be increased throughout the field of industrial production. Or if they are increased only in certain basic lines, a whole series of readjustments in the interrelated cost and price structure will become necessary.

The transition from war to peace affects the cost-price situation quite differently in the various divisions of industry. Accordingly, the whole price structure has to be reviewed. Moreover, since rising costs in any particular industry will affect costs in related industries, continuous review and readjustment of prices is necessary to meet the needs of a rapidly changing situation. The time required for any administrative agency to make wise and equitable price readjustments is so great that, in the judgment of the authors, the expansion of production and employment would be seriously impeded by price control.

• KEEP IT (continued)

mid-1920 living costs were far ahead of buying power. Then people could not pay for what was produced. Our markets slid out from under us. Orders and production dropped, and prices crashed. A total of 106,000 firms went bankrupt and closed up. Thousands of others lost large parts of their investments. Merchants, farmers and industries suffered inventory losses of \$16 billion. Over five and a half million workers lost their jobs. About 453,000 farmers lost their farms. Men and factories were stalled.

As OPA has stated many times, it is the agency's policy to suspend or remove controls as rapidly as pressures on prices disappear. The evidence we can gather indicates that at this time, strong pressures remain in important areas. All the evidence we have shows that there will be tremendous price pressures on durable goods, building materials and rents, as well as some considerable pressures on clothing and food for a long time to come.

The Brookings Institution report goes so far as to say that "even if prices were doubled in these (re-conversion goods) lines, the effect upon the overall cost of living would not be great". During normal times, people spend about eight percent of their income for these goods. Because these goods have been out of production during the war, expenditures for them will be abnormally large during the next couple of years. They will represent an abnormally large percentage of living costs. We are quite sure that the American people would not agree that a 100 percent increase in their prices would be unimportant.

With the responsibility given OPA by Congress, we simply cannot accept that kind of thinking as a basis for our program.

All the evidence we can gather indicates that we have learned a lot of new production techniques during the war. Man-hour productivity has gone up a lot. A recent WAB survey of 3,750 manufacturers shows that these firms expect their June 1946 production to be 87 percent above pre-war levels, with only a 33 percent increase in employment.

This means that labor productivity has gone up. It also means that in order to keep everyone employed, we're going to have to increase both production and sales by a lot more than 87 percent. The important

point is that selling on this scale means that we cannot take any chances on keeping prices at levels large numbers of people can pay. In other words, we must have prices that open the mass markets that are essential to mass production and full employment.

Substantial increase in the price of durable goods would inevitably limit the market, with the danger of pricing such goods outside the volume purchasing brackets. This would of course result in limited markets, limited production and limited employment. It would eventually force prices down violently. Such a reaction would be the inevitable disastrous result of inflated prices.

A Workable Balance

There are going to be many problems involved in getting a workable balance between buying power, prices and production. There are going to be a lot of different opinions about how we can best get this done. One way to help solve the problem is to make sure that we avoid the kind of inflation that upset markets and jobs after the last war.

I think we have to remember that one man's price is another man's cost. Abandoning price controls now would expose us to the danger of inflated operating costs and inflated living costs that upset everything and delayed successful reconversion for two years after the last war. Business cannot plan ahead at a time when costs are unpredictable.

At this time when none of us knows exactly what's going to happen, price and cost control is one of the best insurance policies we can take out.

Of course the next few years are not going to be easy. Wars and the big mechanical improvements that come with them always make unprecedented adjustments necessary. In some ways controls over prices may seem to complicate these adjustments. I think we will all want to face the fact that these adjustments would be much more complicated and difficult if we again permitted the kind of price and cost chaos that brought such tremendous losses and depression after the last war.

The constructive thing to do is to hold on to the organization we have until we see what is going to happen and what changes in controls will be best for everyone.

New Law of Conditional Sale Contracts

By LEO T. PARKER

GENERALLY speaking, conditional sale contracts relate to merchandise purchased under a "condition" that the purchaser will pay for the merchandise in accordance with pre-arranged terms and agreements. Broadly, such contracts include conditional contracts of sale by the terms of which the seller retains legal title to the subject of the sale, and also chattel mortgages under which the purchaser has legal title to the merchandise but with obligations toward the seller.

Obviously, the law of conditional sale contracts presents considerable technicalities. Therefore, purchasers who have the faculty of solving correctly legal problems relating to conditional contracts frequently avoid losses of many thousands of dollars, which includes payment of damages, lawyer fees and other necessary and associated expenses, not to mention the loss of time and effort when defending a law suit which passes through many different courts.

There is truth in the statement that every law suit involving contracts of sale cannot be avoided. However, purchasers who attain sufficient and fundamental knowledge may be certain that future unavoidable litigations can be well and efficiently defended with good chance of receiving a favorable verdict.

Contract vs. Mortgage

Without consuming space for an extensive review of higher court decisions, it is sufficient to explain in a few words that either a chattel mortgage or conditional contract of sale is valid and enforceable, if it is

Recent court decisions clarify rights of buyers and sellers when merchandise is sold conditionally on future payment

properly recorded. Moreover, either instrument is effective with respect to all persons who *know* of its existence, irrespective of whether it is recorded.



This is so because the legal object of recording chattel mortgages and conditional contracts of sale is to give "constructive" notice to *all* persons that another holds a first and valid lien on the merchandise or property specified in the instrument. Obviously, therefore, either instrument is effective with respect to one who knows of its existence, regardless of whether it is recorded, because such person has "actual" knowledge of the lien.

And, also, a chattel mortgage, or conditional contract of sale, is valid in all states in the United States if it is recorded according to the laws of the state where the merchandise or property is situated. This unusual phase of law is necessary for ade-

quate protection to the seller, otherwise the seller would be compelled to record the instrument in all counties in every state in the United States.

For illustration, in *Central Bank Company v. Field Supply Company*, 17 So. (2d) 273, reported March, it was shown that a company purchased certain machinery for which it gave to the seller its promissory note secured by a chattel mortgage which was duly recorded in a county different from the county where the note and chattel mortgage were signed.

Some time later the seller decided to foreclose the mortgage. It was contended by the purchaser that the chattel mortgage was invalid in all counties other than where it was recorded. The higher court refused to agree with contention, and held the mortgage valid in all other counties.

Neither Party Breached Contract

A majority of litigations involving mortgages and conditional contracts may be avoided if both litigants are familiar with elementary principles of modern law. This statement is well illustrated by the case of *Allen Distributing Company v. Serewicz*, 145 Fed. (2d) 169, reported January, 1945. The facts of this case are that a corporation supplied a manufacturer with certain manufacturing equipment. Title to all the equipment was, according to the contract, to remain in the corporation's name.

A disagreement arose between the officials of the corporation and the manufacturer. However, neither party had breached any terms of the

contract. Nevertheless, the corporation filed suit to regain possession of the equipment.

Since the latter had not breached its contract with the manufacturer, the higher court refused to give the latter possession of the materials and equipment, and said:

"The original contract is still in force in so far as this record discloses, and there is neither a claim for finding that the defendants (manufacturer) have violated it."

Therefore, if neither contracting party violates the terms of a contract, both parties remain obligated to abide by the exact terms of the contract. The fact that one of the contracting parties becomes dissatisfied with existing conditions will not entitle him to rescind the contract.



Thus, so long as a purchaser promptly complies with the terms of a contract made with a seller, the latter cannot rescind or otherwise vary or cancel the agreement, and demand possession of the merchandise, although he offers to return to the purchaser all money previously paid on account.

Must Pay Promptly

Generally speaking, failure of a purchaser to promptly make agreed payments entitles the seller to take legal possession of the subject of the sale. Usually the purchaser can expect this rule to be varied *only* when he can prove *positively* that the seller agreed to postponement of agreed payments.

For example, in *Excavating v. United Corporation*, 52 N. E. (2d) 837, reported April, 1944, it was shown that a company purchased certain merchandise. The purchaser made the agreed down payment and a chattel mortgage was given to the seller to secure future agreed payments.

The holder of the chattel mortgage wrote a letter to the purchaser stating that an allowance or credit of \$250 would be made on payment

of the final installment if the monthly installments were paid by the purchaser not later than 15 days past due dates.

Later the purchaser contended that this letter gave him the right to delay monthly payments until 15 days after the due date and that foreclosure suit, filed by the holder of the chattel mortgage, was invalid.

It is interesting to observe that the higher court refused to agree with the purchaser, and held that the holder of the chattel mortgage had a legal right to foreclose the mortgage upon failure of the purchaser to pay the monthly payments on the days when they came due. This court said further that although the seller offered the purchaser a bonus to promptly make the agreed payments, this fact did not authorize the purchaser to become delinquent in payments, although he was willing to forfeit the promised \$250 credit for prompt payments.

Unusual Conditions

Although, under ordinary conditions, when merchandise or other property is purchased on the installment plan the purchaser must pay the agreed installments exactly on the specified dates, yet this rule is *not* applicable if the seller *knows* of unusual conditions which prevented the purchaser making prompt payments.

For example, in *Tallman v. Smith*, 148 Pac. (2d) 581, it was shown that a purchaser purchased \$32,345.00 worth of merchandise, payable in installments, one of which was due January 2. The purchaser became ill and failed to pay the January 2 installment until a few days later.



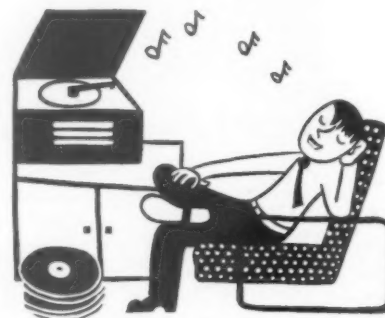
The seller attempted to invalidate the sale and cancel the contract on the ground that the purchaser had defaulted, but the higher court refused to agree with this contention. This court said:

"It is not important that Smith

(purchaser) did not tender his last notes in payment of the third quarter on January 2. He did tender them a few days later, the delay being due to his illness of which Tallman (seller) had knowledge."

Purchaser Fails in Proof

Another important point of law is that the courts will look through obscurities when deciding a suit to repossess merchandise. This is so although no mortgage or conditional contract of sale was recorded.



For example, in *Labash v. Edelman*, 34 Atl. (2d) 414, reported December, 1944, it was shown that a man named Weber purchased a combination radio and victrola for \$150. Soon afterward he died, owing \$30 on the contract. The seller sued to recover possession of the radio. During the trial a man named Morris and his wife testified that about three weeks before Weber's death he had purchased the radio for \$50. Thus, under ordinary circumstances Morris was the legal owner of the radio because the seller had neglected to properly record the sale contract. Therefore, the lower court held that Morris was the legal owner of the instrument.

The seller appealed to the higher court and proved that *after* the date Morris had testified he had purchased the instrument Weber, the original purchaser, had purchased several records for it.

In view of this testimony the higher court reversed the lower court's verdict, and held the seller entitled to repossess the instrument. This court said:

"The story by the defendant (Morris) was most improbable. Weber would hardly have bought records for a victrola he did not own, or have sold for so little an instrument which he had so lately acquired and which was not entirely paid for."

The obvious purpose of sellers' recording chattel mortgages, and conditional contracts of sale, is to secure and perfect a first lien on the subject of sale, in event legal controversy arises in future over ownership of the merchandise. Therefore, purchasers who purchased merchandise having liens thereon must suffer financial losses.

Seller Wins Verdict

For illustration, in *Dewar v. Hagens Drug Company*, 146 Pac. (2d) 208, reported May, 1944, it was shown that a purchaser gave to a seller a promissory note for \$1,800 and a chattel mortgage on certain merchandise. The purchaser sold the note and mortgage to a man named Dewar who sued the original purchaser to foreclose the mortgage.

During the controversy the original seller proved that he had sold the merchandise and held a lien evidenced by the recorded mortgage.

Therefore, the higher court held that the original seller of the merchandise had a prior lien, and that Dewar was the loser.

Seller Must Follow Law

To perfect a lien the seller must in the sale agreement fully and clearly describe the merchandise or property on which he claims a lien; the instrument must be signed and dated in strict accordance with state laws; the contract itself and obligations of both the buyer and seller must be legal and not in violation to any valid law; both buyer and seller must be of legal age and fully authorized to make the contract; both parties must act honestly and avoid fraudulent statements and promises *before* the contract is signed; both parties must agree to perform definite obligations; and if the seller fails to conform with any valid state laws, re-



garding filing and recording chattel mortgages, and conditional contracts of sale, he forfeits his rights to a first lien.

An illustration of the last mentioned requirement is found in the late case of *Post Brick Company v. Brock*, 183 S. W. (2d) 404, reported February, 1945. In this case a seller sued a purchaser of brick to recover \$380.38. The testimony showed that a seller in Illinois sold the brick to a purchaser in Missouri out of a stock of brick which it had kept stored in this latter state.

Testimony showed that a Missouri State law provides that a foreign corporation cannot file a suit in the state unless it has obtained a license to do business in the state. The lower court held the seller not entitled to a recovery, and the higher court refused to listen to an appeal filed by the seller.

Thus, according to the laws of many states a purchaser may avoid

How good is your title to merchandise and equipment purchased or sold under a

CONDITIONAL CONTRACT OF SALE

Is a chattel mortgage an enforceable instrument if it is not recorded?

Can a seller repossess equipment if the buyer has complied with all his obligations to date under a conditional contract?

What three courses of action are open to a seller when a chattel mortgage becomes past due?

Under what conditions is a purchaser entitled to delay in meeting installment payments?

Can the buyer transfer title to merchandise while payments are still incomplete?

What are the seller's legal rights in a state where he is not licensed to do business?

Which claim has precedence — a promissory note or a mortgage?

Does a real estate mortgage include installed equipment on which chattel mortgages are held?

If equipment is installed after a mortgage is executed, can it be removed from the premises?

What is the force of equipment contracts between a buyer and seller who do not have ownership of the building in which it is installed?

payment for merchandise sold by a seller located in another state. This is so if the seller transacts intrastate business in the state in which the purchaser is located, and the purchaser proves that the seller has failed to comply with laws requiring foreign corporations to obtain licenses, or file specified papers with state officials.

Law of Fixtures

Few readers realize the importance of being able to distinguish between ordinary chattels and "legal" fixtures. Briefly, a chattel is removable from real premises without permanent injury or damage to the real property. A legal fixture is a chattel not removable from real property without permanent damages.

For example, in *Arco Company v. Hawthorne Company*, 38 Atl. (2d) 290, reported September, 1944, it was shown that a building had been constructed specifically for manufacturing purposes. A consid-

erable quantity of manufacturing equipment as pumps, engines, condensers, and the like were sold and installed in the building under chattel mortgages and conditional contracts of sale.

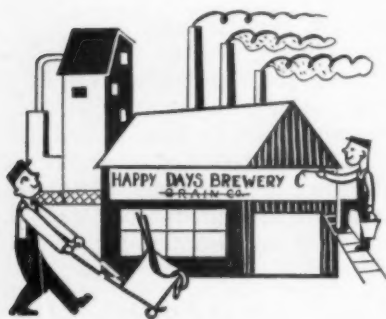
The owner of the building and land gave a mortgage thereon *after* the chattel mortgages were properly recorded. In subsequent litigation it was contended that the manufacturing equipment was a "part" of the real estate and, therefore, the mortgage on the real estate included the equipment and was prior to the chattel mortgages.

The higher court agreed and held that the real estate mortgage included the land, buildings, and all manufacturing equipment. This court said:

"It is apparent that the owner of the building adapted it to the specific use for which it was constructed and equipped . . . The various appliances were actually annexed to the freehold."

Equipment Permanently Installed

Also, see *Columbian Steel Tank Company v. Vosika*, 17 N. W. (2d) 488, reported May, 1945, where the testimony showed that buildings previously used for a grain elevator and mill were redesigned and made over into a brewery. The buildings were mortgaged for \$9,000, and the mortgage was properly recorded in the county Recorder's office.



Six weeks *after* the mortgage was recorded the brewery company, under conditional contracts of sale, purchased equipment to be installed in the brewery. For the contract price the brewery company executed and delivered to the seller 12 promissory notes each for \$582.50, with interest.

By the terms of the contract it was agreed that title to the equipment should remain in the seller until all payments were made. Also,

the contract of sale contained a clause to the effect that the equipment would remain "personal" property and that failure of the brewery company to make agreed payments would empower the seller to take possession of the equipment. The seller recorded this conditional contract in the county Recorder's office.

The brewery company defaulted in making the payments and suit was filed by the seller to repossess the equipment. The holder of the \$9,000 mortgage on the real property objected to removal of the equipment.

During the trial testimony was given that the equipment consisted of certain steel tanks, and that to remove certain tanks from the building would require the making of an opening in the basement wall of at least 8 feet in width, and the removal of a section of the loading platform. In order to recover other tanks it would be necessary to widen the doorway to at least 7 feet, and to remove certain supporting steel "I" beams.

Also, included in the equipment was a 9' x 7' copper kettle which rested on a platform supported by steel "I" beams.

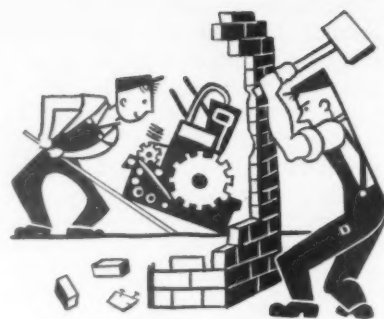
The higher court held that the seller could not remove the steel tanks, notwithstanding the fact that the contract given by the brewery company clearly gave the seller this permission.

However, with respect to the large copper kettle the court held that in view of the value of the metal the seller could dismantle it and remove it from the building because it would not be necessary to damage the building if the kettle were dismantled and cut for scrap in small pieces.

New Owner's Rights

Many other decisions are on record where the higher courts have held that equipment, machinery, etc., bolted down in a manner whereby removal will result in permanent holes in flooring is a "legal fixture" and cannot be removed from real property irrespective of contracts between a seller and buyer who does not have complete ownership of a building.

Also, other courts have held that persons who hold mortgages on the building, or a new purchaser of the building, may object to the seller removing the equipment notwithstanding the contract made by the purchaser guarantees this privilege to the seller.



In one case the owner of a building purchased equipment and failed to pay for it, but sold the building. The new building owner prevented the seller of the equipment from removing it although he had not paid for it, and the contract was clearly in favor of the seller removing and seller repossessing the equipment.

Three Courses of Action

According to modern higher courts when a chattel mortgage on merchandise becomes past due, the holder of the mortgage has three remedies for realizing upon his security: (1) He may peaceably take possession of the merchandise, advertise and sell it, applying the proceeds of the sale to his secured debt, and paying the surplus to the mortgagor; (2) or, if possession be refused, he may institute suit to get possession of the merchandise for the purpose of reselling it; (3) or, he may institute a foreclosure suit.

Except for certain minor differences a conditional sale contract is tantamount to a chattel mortgage, and a majority of suits on conditional contracts for simplicity may be considered as if upon chattel mortgages. See, *Talbott v. Sandifer*, 27 S. C. 624; *Perkins v. Bank*, 20 S. E. 759; and *Hill v. Winnsboro Corporation*, 99 S. E. 836.

Generally speaking, the holder of a conditional contract of sale, or chattel mortgage, and notes of the purchaser, may sell them. The purchaser of the notes may enforce the original contract.

For example, in *State Sav. Bank, Sharpsburg, v. Universal Credit Company*, 8 N. W. (2d) 719, reported May, 1945, the higher court held that if a conditional sale contract and notes of a purchaser of merchandise are unconditionally sold to a purchaser, the latter acquires the right to enforce collection of the unpaid purchase price.

By **NELSON ROSENBAUM**
Assistant Corporation Counsel
City of New York

Buying Patented Articles

Under Competitive Bidding

How municipal purchasing agents are permitted to buy in monopolistic markets without violating the rules requiring competitive bids for public business

THE atomic bomb is convincing proof that we are now in a world of rapidly advancing technological progress. The necessities of war accelerated this progress resulting in the development of numerous new inventions. The deepest secrecy shrouded these new devices. With peace upon us, this veil is lifting. However, many of them are still on the secrecy list. At the conclusion of the war with Japan, a total of 12,128 patent applications had been placed on the secrecy list, pursuant to Congressional authority, while only 3,827 have been released. Approximately 70% of the applications placed on the secrecy list are still undisclosed.

When these inventions are made available they will challenge the intelligence and imagination of the technicians of public agencies to apply them to the public service. Invariably these newer implements will be protected by patent grants or controlled by monopolies. Private enterprises will have no difficulty in procuring them. The question to be discussed here is how are public agencies, required to award contracts by competitive bidding, to procure these newer inventions.

Competitive bidding, described as anti-monopoly in purpose, aims at securing economy in the public administration so that the community receives the benefit of the greatest value for the least expenditure, with the view of promoting honesty, fidelity and morality in the administration of contract awards, and, finally to eliminate favoritism. In substance, competitive bidding means equal consideration by the awarding officer to all qualified bidders, measured by a definite specification of what is required. Obviously, this equality cannot exist with the specification of a patent article or process, since the patentee has "an exclusive right to make, use and vend" the patent.

For over 75 years, the Courts have been interpreting the competitive bidding statutes in regard to patented articles or processes. If there were no legal compulsion for competitive bidding, patented articles could be purchased by public officials without restraint and by private negotiation. In the course of these years several rules as to the procurement of patented articles

have been promulgated. A public officer should inform himself of the rule or rules adopted in his locality before applying the rules to be discussed.

The rules in question are as follows:

1. The "Wisconsin" or "exclusion" rule which prohibits the specification of a patented article.
2. The "Michigan" or "permissive" rule which permits the specification of a patented article.

3. The "alternate" rule.
4. The "equal opportunity" rule.
5. The "combination" rule, which consists of the application of both the alternate and equal opportunity rules simultaneously.

In some jurisdictions there are specific statutory rules for procuring patented articles by public agencies. In a very few there is a complete prohibition against patented articles, such as patented pavements.

The Wisconsin rule prohibits the



Address before the Municipal Engineers of New York City, September 26, 1945.

PLAN PROPOSED BY MR. ROSENBAUM

for handling the purchase of patented and proprietary items under the New York City charter

A committee to be created by the Board of Estimate for the approval of patented and proprietary articles in construction or work or labor contracts. This committee to consist of the Chief Engineers of the Board of Estimate, the Budget Director, and the Comptroller, or their duly designated representatives. The committee to have the following functions, subject to the following conditions:

1. Promulgate lists of acceptable patented, non-patented, proprietary or non-proprietary articles of the same competitive class found satisfactory for city use after laboratory or other satisfactory tests.
2. Such lists shall not be promulgated with less than two such articles and may be augmented, reduced, or rescinded by such board. If one article remains on a list it becomes void.
3. This board shall review its lists as often as it deems necessary, but not less than once every two years to determine whether the articles on its lists are still in the same competitive class or for such other factors as it finds necessary, e.g. maintenance of quality, workmanship, durability, etc.
4. This board before promulgating a list shall declare its intention to do so by advertising for five days in the City Record with at least ten days from the last date of advertisement allowed for the submission of applications and articles. The list promulgated may include articles not originally submitted by applicants. Applications and articles are to be submitted, in form, detail, terms and conditions, as this board may prescribe. Contracting agencies may submit articles for inclusion on approved lists.
5. A list after promulgation shall be filed with the Secretary of the Board of Estimate and Comptroller and shall be open to public inspection, but shall not be effective until so filed. Notice of promulgation of an approved list shall be advertised for five days in the City Record with the location of the place where it may be inspected.
6. The Board of Estimate at any time may rescind in whole or in part any approved list promulgated by the board, nor shall the promulgations of any approved list preclude the Board of Estimate in a special case from prescribing the conditions for fair and reasonable competition.
7. An approved list promulgated by this board when there exists a standard specification approved by the Board of Estimate shall be made a part of such standard specification, but shall not be in conflict with it.
8. The records of the Board of Standardization shall be made available to this board.
9. Any duly adopted acceptable brands list of the Board of Standardization may be adopted by this board.
10. A contracting agency may not specify in a construction or work or labor contract a patented or proprietary article of a class or type for which there exists an approved list unless the patented or proprietary article is on such approved list.
11. All laboratories and testing facilities of city agencies shall be made available to such board and upon its request such laboratories and testing facilities shall conduct tests and other operations as specified by such board.

specification of a patented article in a public contract awarded on competitive bids. This rule was announced in 1868. It is based on the theory that the naming of a patented article thwarts the basis upon which the power to make the contract is given, i. e. the securing of competitive bids, which cannot exist when a patented article is demanded. Other Courts which recognize this rule stress the necessity of having "real and practical competition" and argue that "no one can compete, on equal terms, with a man who controls the sale of the thing needed" and that under these conditions "there can hardly be a lowest bidder".

The Wisconsin rule has also been applied to contracts calling for the delivery of an unpatented article under a coined or trade name.

Where it is illegal to include a patented article in a public contract,

the contractor cannot recover even for the performance of the unpatented work, because the specification of a patented article precluded all persons other than the patentee from successfully securing the contract. However, this is not so when the contract does not demand a patented device and the contractor voluntarily uses a patented contrivance.

The Michigan Rule

The Michigan rule was also enunciated in 1868. The argument was advanced there that a contract calling for a patented pavement prevented the competition intended by the competitive bidding statute. This view was rejected on the ground that such a holding would deprive public agencies of the use of newer, more useful and, in some instances, cheaper inventions. The Michigan Court indicated that an awarding

officer was not helpless against paying exorbitant prices for such a contract since he could reject an unreasonable bid and concluded that the requirement for competitive bidding was intended to secure competition only when practicable. Other Courts have rejected the view that patented articles could not be specified in contracts to be awarded on competitive bids. In New York in 1878, the Court of Appeals in upholding the right of public officials to specify patented articles in public contracts stated that the selection of materials to be used in a public improvement rests in the discretion of the designated public officer, whose discretion should not be curtailed by a general directory provision providing for competitive bids; that statutes such as those in question merely prescribe forms of procedure that are obligatory only to the extent to which they are applicable by their terms; that the legislature cannot be presumed to have intended that the power shall be exercised or work contracted for only if admitting of competitive bidding. Accordingly, it was held if an article specified does not lend itself to competition, nevertheless a public officer has power to specify it and the article may be considered as an exception to the statutory provision requiring the receipt of competitive bids. Subsequently this rule was changed by law for the City of New York.

Permissive Rule

Other Courts adopting the permissive rule have done so on the basis of public necessity and welfare, pointing out that it was "never intended that city authorities should be unable to make a contract, however necessary to the public welfare such contract might be, if the article desired, or the manner of performance of the contract, required the use of patented articles".

However, the right to specify a patented article does not authorize a contracting officer to include in it one contract with work which is unpatented and capable of separate performance and for which competition can be secured. This rule was laid down in New York in 1871 in *Matter of Eager*, 46 N. Y. 100. A contract so awarded is void. By combining the two items in one contract, the patented and unpatented items, competition is excluded on that for which competition may be obtained. The proper practice to

follow in such a case is to receive separate proposals for the work capable of being performed separately.

The charge is often made when patented articles are specified, that they possess no superiority over unpatented ones. Courts, however, are loathe to set aside the judgment of public officials acting in good faith. To cast aside the selection of a patented article, there must be proof of bad faith, not evidence of bad judgment, or otherwise Courts would be substituting their judgment for that of the public officials charged with the duty of making the necessary selections and thus deprive public agencies of the chance to secure those things best suited for their purposes and often at lower prices.

In applying the Michigan rule, the question of advertising for bids arises. Some decisions hold that such advertising is not required because there is no opportunity for competition, and negotiation of the contract is more appropriate. On the other hand, it has been held that a contract for a patented device is subject to the statute requiring advertising for bids and failure to do so voids the contract awarded. One view of this question is that the neglect to advertise would permit the secret negotiation of public contracts and that patented articles may be subject to competition on the part of numerous licensees of such articles.

In the absence of judicial precedent or statutes permitting the dispensation of advertising for bids, as a matter of proper administrative practice, for the purpose of saving the contract awarded from possible attack, the requirement for advertising for bids should be observed.

The two original rules were far from satisfactory. The Wisconsin rule if followed strictly would tend to impair the public service. The Michigan rule, if freely followed, might lead to abuses and loss to the public treasury.

This situation resulted in the development of three additional rules. The foundation of these rules is based on securing competition.

Alternate Rule

In 1872 there appeared the "alternate rule". It is a method for securing bids based upon the specification of several articles as alternates which serve the same purpose with the alternate selected after the bids are opened. In this way two kinds of competition are carried on

simultaneously: (1) between different alternates, and (2) upon the same alternate. Under this plan the award of the contract is not determined by the lowest bid on any alternate, but by the awarding officer taking into consideration all the necessary factors and then choosing the alternate which in his judgment is best for the public needs. Once the alternate is chosen the award must go to the lowest or lowest responsible bidder, depending on the statutory criterion, on the selected alternate.

The alternate rule has been approved because it permits more diverse products to be brought into the contest for the contract resulting in greater competition. Since the preference for the successful alternate is determined after the bids are received, it is stated that it is improbable that anyone seeking the adoption of his product will ask exorbitant prices.

Equal Opportunity Rule

Another rule which was developed is called the "equal opportunity rule". It is applied when a specific patented article or process is desired, such as a patented surface in paving job. This rule secures all the competition the circumstances allow. Under this plan all bidders are given an equal opportunity to secure the patented portion of the specification upon the same price and terms from the patent holder.

This equality for bidders is maintained by the contracting agency securing from the patentee, before the bidding, a binding agreement that he will allow any successful bidder to use his process upon the payment of a stated royalty; and in the case of a patented article, he will sell the patented device to any successful bidder at a stated price.

Several beneficial results are obtained under this rule: (1) it permits the use of patents for the benefit of the public service; (2) it prevents the patentee from using his monopoly to charge exorbitant prices on those things not within the terms of his patent grant; (3) it places within the public agency power to name the price for the patented device, by recognizing its right to decline it, if the price asked is unreasonable.

Under the equal opportunity rule, the question arises whether the patentee may bid on the contract. The better rule is in the affirmative, since the patentee has agreed to sell his patent at a fixed price to any successful bidder, the patentee's

profit on his patent is secured whether or not he obtains the contract, and his entry in the field provides additional competition.

However, if the price to be paid for the patented article is so exorbitant as to give the patentee, who is also a bidder, an advantage over his competitors which enables him to secure the contract, it is very likely that the Courts will declare a contract so obtained void.

Combination Rule

The "combination rule" is the application of the two rules just mentioned. It is often applied, but not exclusively, where a patented article is put into competition with alternates when the patentee declines to bid on the contract, but is willing to allow any bidder to have his product upon payment of a reasonable price previously determined by the contracting official. In this way an alternate which otherwise would not be placed into competition is put into the running thereby creating additional competition.

Federal Procurement of Patented Articles

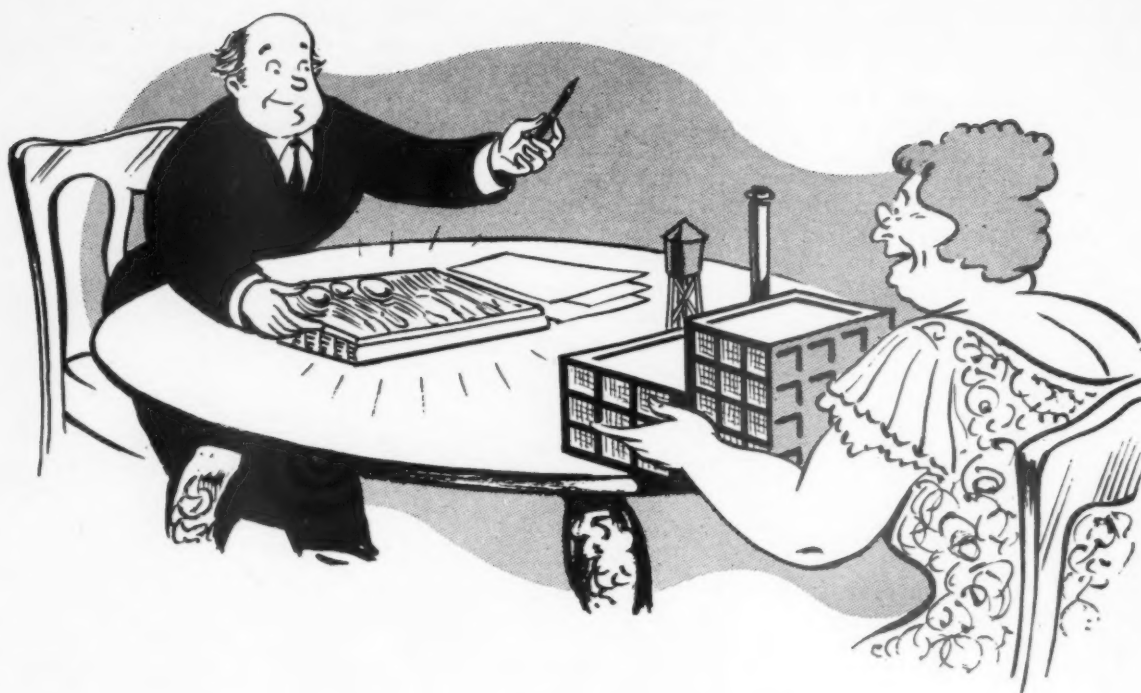
Federal agencies are able to procure any patented article or use any patented process. This is made possible by an act of congress authorizing the federal government in its sovereign capacity to exercise its right of eminent domain as to any patent upon payment of compensation to the patentee. Under this law the rights of the patentee are appropriated for the use of the government with the entire burden of compensation to the patentee being assumed by the government, thereby protecting the government's contractor in the use of the patent from an injunction and from any liability in damages at the hands of the patentee. This statute, in effect, prevents the suppression of any patent so far as the national government is concerned.

However, this federal law does not protect a federal contractor who for his own convenience uses a patented article or process. To secure the protection of this provision the federal contract must require the federal contractor to use the patented article or process.

New York Regulation

After the adoption in 1872 of the Michigan rule by the Court of Appeals, the legislature prescribed a statutory method for securing pat-

(Continued on page 370)



Pop on the Prowl

In the days before good industrial plants were classified as surplus property, Pop had occasion to buy one for his company, and he had to clear up a family row about the ancestral silver to close the deal

By CHARLES FORD

MR. JAMES ANDERSON, sometimes referred to as "Pop" by his younger associates, stuffed a kit-bag in the back of his car one fine morning and started out. As Vice President in charge of purchases of the J. B. Ackroyd Co., and enjoying the complete confidence of old J. B., who admired his poker technique, Pop came and went about as he damn' pleased. He had an organization hand-picked to carry on while he was away; and his trips were apt to be a combination of fishing with the seeking of that which the J. B. Ackroyd Co. might devour.

This time Pop was playing a hunch, in which he was aided and abetted by J. B. himself. It happened in the middle '30s. Times were hard; there were hordes of people unemployed. Everybody possessing ten cents and upward hugged it to his bosom. Old J. B., by all sorts of scheming and the full use of his two bully organizations, sales and purchasing, had managed

so far to run full time with pretty nearly a normal force. If he couldn't get a dollar, he took ninety cents or anything else down to cost, because he wanted to see his gang taking home rent and eating money every week, win, lose or draw.

A few days before Pop started on his trip, he and his boss had a serious talk over high-balls at the country club. J. B. remarked:

"Jimmy, as sure as hell's hot we are in for a war. That guy Hitler is blue-mouldy for it, and here we are, everybody hard up as hell. No army, damn' little navy; France rotten and England with pants down and no galluses. Looks to me as if every plant that can work metal is going to get kicked into war stuff any minute. Ackroyd's is going to be ready."

"What about the directors, sir?" inquired Jimmy. "When you hinted at this last meeting they were mum as a lot of quahogs, and I could even see a couple of them sniffing."

"I still own a stock majority, Mr.

Jimmy, and the directors will damn well vote the way I want them to. Ackroyd's is going to blow in some of its surplus."

"I've been waiting six months to hear you say that, sir. If you don't see much of me for the next month or two, please don't ask any questions. I'm going on a prowl."

J. B. grinned. "Attaboy, James, and you needn't itemize the expense account. Call me up if you have to, but prowl like hell."

And the meeting adjourned.

Voyage of Discovery

Pop had long ago discarded the historic old Stutz, and affected a long, lean coupe, always kept in the pink of condition, and warranted to leave the most enterprising cops at the post. He had been studying things for several months, and had a rather imposing list of metal-working plants in various stages of financial and labor difficulties; also a list of bank officials whose worries included these same plants. Of course, it was to be expected most of these would turn out to be duds from the Ackroyd standpoint; they did. But one pleasant evening he poked the coupe's snout into the outskirts of a rather attractive city, bisected by a lively stream with a considerable fall and a couple of sturdy-looking dams.

And there, between the two dams and lying parallel to the river, was

one of the neatest factory buildings he had ever seen—idle, beyond question. Pulling up, he got out and snooped at all the windows he could reach, then slid the car along the main street to the hotel.

He spent that evening poring over his list of care-worn bankers.

Next morning he appeared bright and early at the River National, demanding to see the president. Before he made it, he had to mow down a bunch of assorted vice presidents; and when he finally reached the Great Mogul he found an atmosphere of gloom thick as a Cape Cod fog.

As was his custom, Pop went directly to the point.

"My name is Anderson, sir—" Pop was always liberal with his "sirs" when addressing older men—"and if you want to find out what sort of man you may want to do some business with, call up William Wilson"—naming the head of a famous bank—"and I'll be very glad to pay for the call."

The banker was not impressed, but he mechanically put in the call. When it came he nodded Pop to answer. The talk was brief:

"This Bill Wilson?"

Evidently it was. "Bill, this is Jim Anderson. I'm at the River National Bank in Riverhurst; they have a Missourian president and he's only slightly interested in finding out whether I am *bona fide* or *non compos mentis*. Talk to him, will you?" And he handed the receiver to the man from Missouri.

The interview seemed to be satisfactory. The telephone was rather loud, and Pop could hear most of Wilson's remarks. What he actually said was: "Jim Anderson? Medium height, ten or fifteen pounds heavy for his inches, hair dark red, smooth face, hazel eyes that pop out at you when he gets excited? Always says 'sir' to an older man? That's Jim Anderson. I don't know what the hell he is after but give it to him. He won't put any bite on you, and anything he tells you, which won't be much, will be the truth. No, I don't know how much money he has, but it will be enough to make good on anything he agrees to. Yes, let him have anything he wants; you might as well, he'll get it anyhow. Good bye."

The banker turned to Jimmy. "Just what are your relations with Mr. Wilson, Mr. Anderson?"

"Well, sir, Mr. Wilson relieves the strain of his banking responsibilities by playing poker with a gang of high-binders every Satur-

day night. When I am in New York, I become a high-binder."

The banker remarked drily: "I judge Mr. Wilson's favorable opinion of you cost him something."

"Could be, sir."

"Well, what can we do for you?"

Plant for Sale

"As I came into town last night over the River Road, I noticed a very neat factory building back a little from the road, so I stopped and snooped. Just what is it, and why is it idle?"

"A man named Sam Ludlum built that plant five or six years ago to make small Diesel engines. He had some kind of a patent he thought good; others thought so, too. Sam had made a good deal of money building special machinery over in Waterbury; he sold out to good advantage and got this engine bug, so he built this factory and installed the machinery. Everything about the place is first-class. But Sam hadn't more than got a batch of engines started when his car blew a front tire and landed against a tree. Sam never recovered consciousness. His will named two heirs, a daughter of one brother and a son of another. The son is with one of the big insurance companies in Hartford; nice enough fellow, but rather small bore. The daughter, Mrs. Saxton, is a widow and lives upon the hill above the factory in Sam's old house. The two hate each other; when one wants to do something about the property the other won't. It seems to be a case of female antics over possession of some old family silver. The woman says her cousin swiped it after Sam's death and that Sam promised it to her. So we had to take charge."

"When Sam built we loaned him fifty thousand dollars and took a mortgage. If he hadn't injudiciously rammed that tree we would have been all right, for Sam was a good business man and a fine mechanic. As it is, we are stuck until we can reconcile the heirs and sell the property."

"How much money will buy it?"

"We'll accept payment of the face of the loan and cut the interest in two. What the heirs will do God only knows and he won't tell. Because of certain legal complications we can't foreclose, but we have taken charge subject to the whims of a fractious female and her rather narrow-minded cousin."

"Any objection to my seeing what I can do?"

"None whatever."

Jimmy questioned the banker further and got the low-down on the family silver; and incidentally found out that Ludlum's superintendent was still in town, working in a small machine shop, and acting as caretaker of the Ludlum plant. The banker told him Dennis Callaghan was considered a good man fifty-one weeks of the year.

"What's wrong with the other week?" asked Pop.

"The other week, Christmas to New Year's, he's a wild fighting Irishman trying to drink all the whiskey in Hartford. Sam Ludlum never could stop it and quit trying. But, outside of that, Dennis is a good man and knows his business."

Unfinished Business

The upshot was, Jimmy hunted out Dennis Callaghan and drove him over to the plant. "Mr. Callaghan," he remarked, "would you like to see that place started up with yourself as super?"

"Would I not, me lad?" answered Dennis Callaghan.

"Can you raise a competent gang?"

"None better; I can get every one of the old hands back, and they're good."

"Fair enough."

They went over the place thoroughly; it was perfect in order and neatness, well laid out, good new machinery, motored throughout. Every machine was thoroughly greased and covered with a tarp, and no dust on the tarps. The power and light came from the upper dam, and every bulb was wiped clean.

"She's ready to start tomorrow," said Dennis Callaghan.

"What was Mr. Ludlum going to make?"

"Small size Diesel engines, sir. He had a patent valve arrangement that made the engines smooth as a smelt." Jimmy's ears pricked up at the mention of the patent.

"Any finished engines?"

"Just one; I'll show you." And he pulled the cover off a small engine standing on a test block. "Wait till I start her up."

Callaghan looked at a small fuel tank against the wall, twiddled a few adjustments, pressed a starter button, and the motor buzzed off quietly and efficiently. "That, sir, is the best little engine that ever was made. There are twenty-five of them half done, just as poor Sam Ludlum left them. This was the first. The patent papers and blueprints are in the vault."

"May I have a look at them?"
And they pored over blue-prints for a couple of hours.

Taking an Option

Next morning the long, lean coupe burned up the road to Hartford, where Jimmy made a telephone appointment with one Peter Ludlum for lunch at the Insurance Club. Peter proved to be a rather under-sized, mild-mannered chap, with a narrow half-bald head and a straggly mustache. They ate a good lunch to the tune of a very general conversation, and Jimmy could see that Ludlum's curiosity was getting pretty well steamed up.

After lunch they settled down comfortably in the lounge, and Pop uncorked his purpose. "What's the objection to turning that Ludlum plant in Riverhurst into something that looks like real money? Apparently you are getting nothing out of it and I may be able to use it."

"No objection, as far as I am concerned. It's my cousin who makes a fuss every time a sale is mentioned. She just won't, and nobody knows why."

"If I find the money for the mortgage and pay you and your cousin ten thousand apiece, cash on the barrel-head, would that interest you?"

"It would have to be fifteen thousand as far as I am concerned; you can make your own deal with my cousin if she'll deal at all."

"Will you sign an agreement to sell if I can convert her?"

"Why, yes." Ludlum's eyes showed he wished he had said twenty-five thousand, but he stuck. Pop went over to the club stenographer, dictated and received documents, signed both copies, pushed them over to Ludlum with a hundred-case note to bind matters, and Ludlum signed.

Cherchez la Femme

That was that. Pop again sought the road to Riverhurst. Next morning the coupe pulled up in front of a comfortable modern-looking farm house, with a well-kept orchard behind it, stretching down to the river.

A maid answered the bell, and ushered him into a homey sort of living room, where a buxom good-looking woman rose as he entered.

"Mrs. Saxton, I believe?" Jimmy's manner was just what a buxom, good-looking woman would like. "My name is Anderson. What a pleasant place you have here. Is there any fishing in the river? It's

the first time I have been in the town and it looks pretty good."

"Yes, Mr. Anderson, it's a nice town and the fishing is good a little farther above the dam. Was that what you wanted to see me about?"

Pop grinned. "Not exactly, Mrs. Saxton. You might call me a sort of reviver of anaemic industries. Inquiring at the bank, they told me you are part owner of the Ludlum factory."

"That is true, Mr. Anderson. My uncle left me a half interest which I can't sell unless my cousin sells at the same time. I could use the money putting my orchard in better shape."

"If you can get your cousin to agree, will you take fifteen thousand cash for your interest, my people to assume the mortgage?"

"Before I oblige my worthy cousin by selling my half of that plant he's got to return me the set of my grandmother's silver he stole from this house when Uncle Sam died. I've told him more than once that silver comes back where it belongs if he expects me to accommodate him."

"Will you sign an agreement to sell, provided you get back your silver?"

"Yes, I will."

Jimmy produced from his pocket duplicate copies of an agreement, laid them down on a table, fished out his pen and added to each copy an agreement to restore Mrs. Saxton's spoons as a condition of the sale; then he signed both copies and pushed them over to Mrs. Saxton with a hundred dollar bill. She read both copies carefully, pouched the bill somewhere, and signed.

Grandmother's Silver

Again he scorched the Hartford road and called up Ludlum.

"Anderson talking, Mr. Ludlum. May I come over to your house this evening?"

"Come to dinner; my wife will be glad to have you," said Ludlum.

"Thanks," said Pop. "I'll be there."

They sat down to a modest, well cooked dinner, and when they adjourned to the living room, Jimmy opened fire. He could see that Ludlum was itching to finger that fifteen thousand.

"Well, Mr. Ludlum, we're all set to close the deal except for one thing."

"What's that?" asked Ludlum.

"Grandmother's silver spoons."

"What have they got to do with it?" queried Ludlum.

"Just this, Mr. Ludlum; Mrs. Saxton is willing to sell, but she makes it a condition that you return some of her grandmother's silver which she says is in your possession."

"What do you say, Mary?" Ludlum asked his wife.

"Why, let her have it," said Mrs. Ludlum. "It's lovely antique stuff, but we never use it, and I don't think we ought to let it stand in the way of getting the plant working."

"That's very good of you, Mrs. Ludlum. Suppose I give you a receipt for it, and take it back with me to Mrs. Saxton?"

Both Ludlums jumped to break out the silver and pack it in a basket. Jimmy checked each item and found it to agree with a list he had gotten from Mrs. Saxton.

As he left, the Ludlums asked, in the same breath: "When will the deal go through, Mr. Anderson?"

"Tomorrow, I hope," said Jimmy, piously, and said goodby. He raced back to Riverhurst, left the silver locked up in the car and rang up J. B. Ackroyd.

Closing the Deal

"Mr. Ackroyd, come down here tomorrow with two checks, made out to yourself and certified, for fifteen thousand bucks per each, and another for fifty-seven thousand five hundred of the same. If you don't like what I've found you don't have to spend the money."

J. B.'s remarks bordered on the sulphurous, but he agreed to be there. The boss's first words of greeting were: "What the merry hell have you let me in for now, young fellow?"

"Wait and see. I'll have your eyes bunging out before the day is over, Mr. Ackroyd." And Jimmy refused to say another word until they got under way, mobilized Dennis Callaghan and pulled up in front of the Ludlum plant.

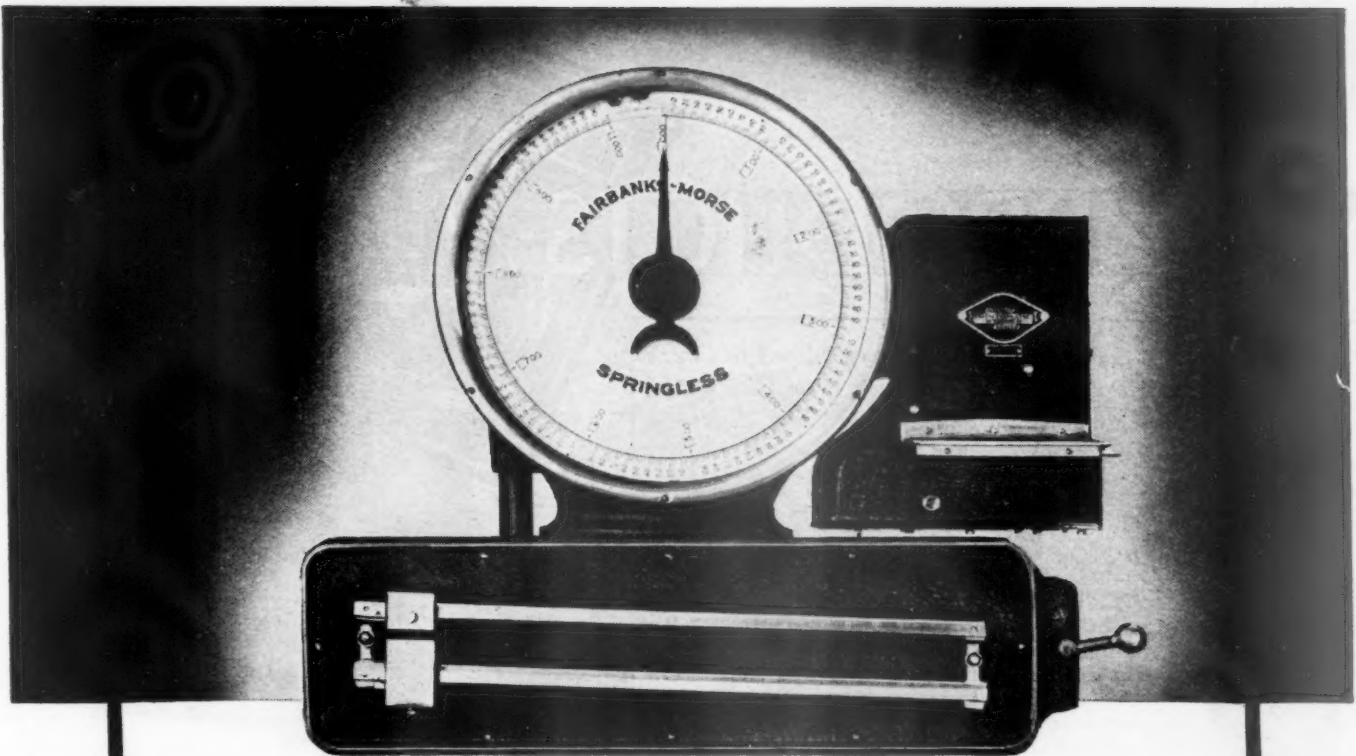
"What the blazes you got here?" exploded J. B.

Dennis Callaghan took it upon himself to answer. "The sweetest little factory and the slickest little Diesel engine you ever saw, mister."

J. B. didn't say another word, just chewed a big cigar all the time Dennis took to show them around and start the engine on the block. J. B. watched the meters, and chewed. He pored over the blue-prints and patent papers, still, like Brer Rabbit, saying nothing.

He shook hands with Dennis as

(Continued on page 378)



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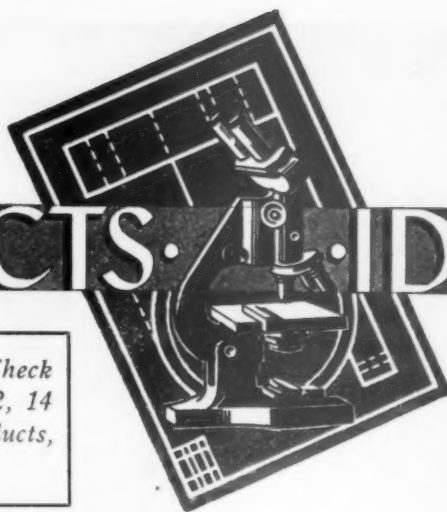
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VERTICAL MOTOR



VERTICAL drip-proof motor which is rated at 40 C rise continuous duty with a 15% service factor, designed for operation from 60 or 50 cycles, 3 or 2 phase circuits at all standard voltages, is announced

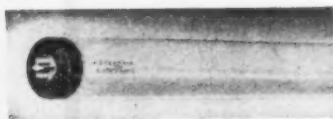
by the Crocker-Wheeler Division of Joshua Hendy Iron Works, Ampere, N. J. All ventilating openings are shielded against the entering of dripping liquids and falling particles. Recessed junction box provides ample room for making connections. Coils are protected with Vinylastic insulation.

GLASS TOP FOR WORK BENCHES

NEW grey-green colored Carrara glass designated as Tranquil green, which is said to make an excellent

top for work benches, particularly those where small parts are handled and assembled, is announced by the Pittsburgh Plate Glass Company, Pittsburgh, Pa. The new colored Carrara is suited for variety of purposes such as store fronts, and varied interior uses.

COLD CATHODE K LAMP



INTRODUCTION of a cold-cathode K lamp is announced by Sylvania Electric Products, Inc., Danvers, Mass. Lamp will be made in 72" and 96" lengths of T8 (1") diameter; instant starting, with rated life of 10,000 hours. On and off operation will have virtually no influence on reducing the life of the lamp, it is said. The new K lamp is especially adaptable for installations where maintenance is either difficult or costly. Lamps will operate on standard 120 milliamperes multiple ballast.

ANNOUNCE BULK TANK PREHEATER

NEW bulk tank preheater has been developed by Rempe Co., 342 N. Sacramento Blvd., Chicago 12, Ill., for preheating heavy liquids in bulk storage. Preheater can be made to fit any size tank having a manhole 16½" or larger. It is installed by cutting or drilling holes for pipes in manhole of the tank. Thirty-eight square feet of direct radiation surface plus 10 sq. ft. of secondary shell heating surface, are provided. Unit is built for use with steam or hot water. The coil is 1½" standard steel pipe.

GEARLESS PUMP



IMPROVED gearless pump for water, light oil or other liquid circulating use has been introduced by Eco Engineering Co., Dept. 61, 12 New York Ave., Newark, N. J. Bearings require only water lubrication. All metal is of bronze. Pump can be used in oil, or fresh or salt water. Can be mounted at any angle and operated in either direction with equal efficiency. Opening of face plate allows quick removal of any obstructing material. Available with single impeller and standard ½" connection and double impeller with standard 1" connection.

FLUORESCENT LIGHTING FOR LOW CYCLE CURRENT

current is announced by Electronic Laboratories of Indianapolis, Ind. The new unit uses a rectifier tube and a voltage doubler circuit eliminating the flicker on low cycle current in the Niagara Falls area, and other places where the electric current is supplied by water driven turbines.

NEW bulk tank preheater has been developed by Rempe Co., 342 N. Sacramento Blvd., Chicago 12, Ill., for

IMPROVED gearless pump for water, light oil or other liquid circulating use has been introduced by Eco Engineering Co., Dept. 61, 12 New York Ave., Newark, N. J. Bearings require only

A CONVERSION unit producing a flickerless fluorescent lighting system to be used on 25 cycle electric

"PIANO FINISH" BUFFING TOOL

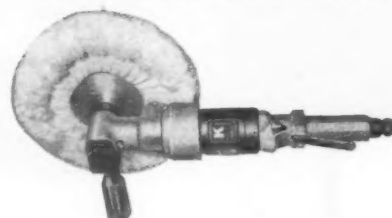


ILLUSTRATION shows Keller 20 PA buffing tool made by Keller Tool Co., Grand Haven, Mich., which is said to have been developed especially for buffing the "Shooting Star" plane. Specifications for the tool called for an angle type polishing unit operating at 2300 rpm for use with a 7-in. lamb's wool buffing pad, and to weigh not in excess of 7 pounds. Tool has plastic handle.

SEALOC NUT LOCKS THREADS

A SEAL designed nut, known as Sealoc nut is announced by the Auto-Diesel Piston Ring Co., 3223 Superior Avenue, Cleveland 14, Ohio. The design is said to cause a compressing action, so that the nut positively locks the threads to bolts and studs. It can be easily and quickly removed. Said to facilitate production and assembly. Literature available upon request.

FLARE NUT WRENCH



FLARE nut wrench for use on plastic pipe, tubing and soft metal fittings is announced by the Plomb Tool Co., 2209 Santa Fe Ave., Los Angeles, Calif. Head is flat based on a modified 12-point design with opening which allows access to fittings around tubing. Wrench may be used in close places and small turning arcs. Wrench is made in nine sizes ranging from 1" to 1½".

(Continued on page 142)



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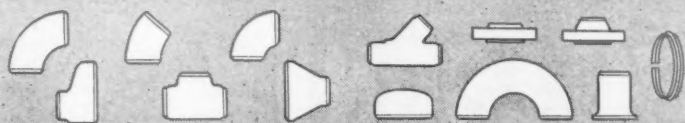
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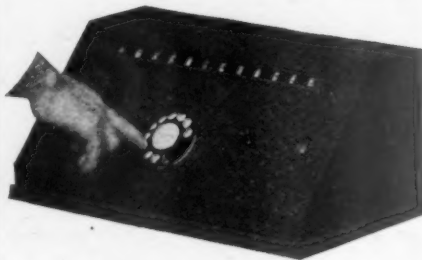
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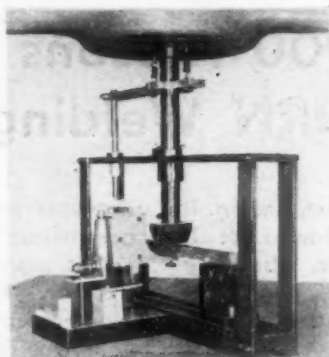
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NEW TESTING DEVICE



COMBINATION flexure tool and deflectionometer for testing molded plastics, plastic laminates, and woods, has been developed by the Soutwark Divn. of the Baldwin Locomotive Works, Philadelphia 42, Pa. The instrument will make tests in bending in accordance with the latest federal specifications and those of the A. S. T. M. and will fit any testing machine. Instrument permits the operator to adjust the magnification of deflection in multiples of 5, 10, 20, 50, 100 and 200 times. The high magnification is used for very stiff and brittle materials. The deflection therefore is measured in terms of thousandths of an inch. The low magnification permits recording large deflections which may be as much as two inches with very flexible materials. The deflectionometer will operate from -70 deg. to plus 170 deg. F.

AMERTRAN BALLASTS FOR FLUORESCENT LIGHTING

Newark, N. J. The manufacturer claims for AmerTran ballasts an exceptionally close matching with tube characteristics, thus assuring maximum lamp life and maintained brightness. It is also claimed that flicker, end-backing, pre-mature burn-outs are reduced. Among its features are extremely quiet operation and roll-turn lead-out that prevents strain on lead insulation and makes wiring easier. Dimensions of ballasts are adaptable to all standard fixtures.

ALUMINUM CABLE CONNECTORS



ELECTRIC connectors for small-size aluminum wires and cables which are said to provide permanent, low-resistant

connections, are announced by Burndy Engineering Co., 107 Bruckner Blvd., New York 54, N. Y. In their manufacture zinc is plated on oxide-free aluminum which prohibits reformation of oxide film. Connector barrel contains zinc dust jelly which is forced between individual strands, zinc particles breaking through oxide film on each strand. Connections are said to show a relative conductivity approximately double that of ordinary aluminum connection.

UNDERWATER CUTTING EQUIPMENT

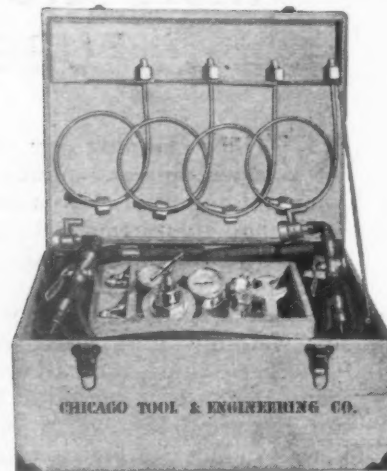


ILLUSTRATION shows underwater arc-oxygen cutting equipment developed by Chicago Tool Engineering Co., 8383 So. Chicago Ave., Chicago, Ill. Laboratory tests have shown that 1" steel plates can be cut at the rate of approximately one foot per minute. This rate is said to be practically double that of other methods used and in plates of lesser thickness the saving of time is still greater. Operation is said to be simple. Detailed information available upon request.

(Continued on page 144)

MONUMENT TO A LOST KINGDOM

*that knew
no Steel*



FOUR hundred years ago, an enemy invaded the North American continent. A little band of Spaniards, encased in steel armor and equipped with steel weapons, quickly overran the country now called Mexico, slaughtered thousands of defenseless Aztecs, and enslaved the Kingdom of Montezuma.

Although the soil was impregnated with iron and large masses of it were scattered over the surface of the tableland, the natives did not know how to smelt the ore or work the metal. Today, the descendants of these vanquished Americans, still ignorant of steel, wander amidst jungle-choked ruins of cities without even a racial memory of their people's former greatness. Well may we term this vast, strange pyramid, recently excavated at Chichen Itza, a 'Monument to a Lost Kingdom'.

Twice in our time, would-be invaders have failed to conquer

America. Italy, Germany, and Japan have lost. So once again it is proved conclusively that to win a war a nation must have or achieve superiority in the use of steel.

Steel can prevent wars as well as win them. In self protection, America must maintain her pre-eminence in steel, must employ it for permanent peace. To that end, Youngstown, who produces a large percentage of America's steel, is ready to supply it...in wanted forms and formulae...to industry, to build new and improved products, thus to provide jobs, eliminate want and disease, insecurity and fear, and so advance peace and well-being throughout the world.



YOUNGSTOWN
THE YOUNGSTOWN SHEET AND TUBE COMPANY
YOUNGSTOWN 1, OHIO

Export Office . . . 500 Fifth Ave., New York

Manufacturers of
CARBON - ALLOY AND YOLOY STEELS

Pipe and Tubular Products - Sheets - Plates - Conduit - Bars - Electrolytic
Tin Plate - Coke Tin Plate - Rods - Wire - Nails - Tie Plates and Spikes.

Two Ways to Solve Your New Tag or Label Problem



NOW is no time to lose time, or risk mistakes, in creating new tags or labels. You'll get the right answer to your problem *faster* by consulting **Dennison first**.

Dennison know-how is founded on over 100 years' experience in originating and manufacturing paper specialties. And in producing tags and labels by the millions, we have done the impossible time and again.

If your problem is mainly one of design, Dennison recommendations for art, color scheme and lettering are based on scientific research and an intimate knowledge of selling conditions in every business.

Perhaps you face a difficult technical problem. How best to fasten your tag to your product, for instance. Or if you're thinking about labels, how to get one to stick to an unusual surface and to stay stuck or peel off as you require. Dennison has those answers, as well.

Remember, too, that you don't have to pay a premium price for expert knowledge when you put your problem up to

Dennison
HEADQUARTERS FOR PAPER SPECIALTIES



FREE—ILLUSTRATED BOOKLET—Our booklet "If You Could Only Be At Every Point Of Sale" is full of practical information on how to make your product more salable through correctly designed tags and labels. Just fill in and mail coupon and we shall be glad to *rush* a copy to you.

TAGS • LABELS • SEALS • SET-UP BOXES • MARKING SYSTEMS • PAPER SPECIALTIES

Dennison Manufacturing Company
79 Ford Ave., Framingham, Mass.

Please send me without obligation, booklet "If You Could Only Be at Every Point of Sale."

Name.....
Firm.....
St. & No.....
City.....Zone.....State.....

SYNTHETIC STAINPROOF HI-BAKE ENAMELS

SYNOX is the name of new group of all synthetic, hi-bake enamels that give an exceptionally hard, stain-

proof finish designed for heavy household usage, developed by The Arco Co., Cleveland, Ohio. Now being produced in whites, one type is designed for refrigerators, deep freeze units, stoves, ironers and electric mixers, and another for dishwashers and washing machines. The enamels are said to have unusual degree of water and alkali resistance, stain resistance, and exceptional color retention. They resist normal fruit acids, vinegar, etc., and are not affected by dilute or concentrated alkaline solutions. Coatings also are said to resist the action of hot soapy solutions without dulling or excessive softening or embrittlement. Synox has been applied to clean steel with or without primer, to aluminum and to magnesium.

ENGINE DRIVEN WELDER

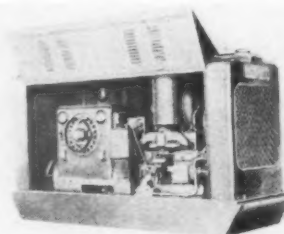


ILLUSTRATION shows light weight, full capacity 200 ampere simplified engine driven welder announced by The Hobart Bros Co., Troy, Ohio. Completely enclosed in compact steel canopy with hinged side panels and powered with a sturdy 26 hp four-cylinder engine for economical operation, the new unit has a wide range of 40 to 275 amperes. It is equipped with multi-range dual control of welding current which makes it easy for operator to adjust voltage and amperage relationship to a fine degree. The picture shows stationary model with newly designed steel skid mounting beveled at both ends with tubular end cross members for easy skidding. Portable mountings on a 2-wheel pneumatic tired trailer or on 16" shop type wheels are also available.

DECALCOMANIA WITH A TWO-WAY STRETCH

"**ELSATI-CALS**," decalcomanias with a two-way stretch, are announced by the Meyercord Co., 5323 West Lake

St., Chicago, Ill. They are made of stretchable material and applied to rubber and other elastic surfaces, are used as name plates, trade marks and colorful decorations. Elasti-cals utilize elastic materials in printing and manufacturing operations under a patented process to provide markings stretch to several times their normal dimensions. Uses include rubber footwear, bath mats, baby clothes and equipment, sporting goods and a variety of other products.

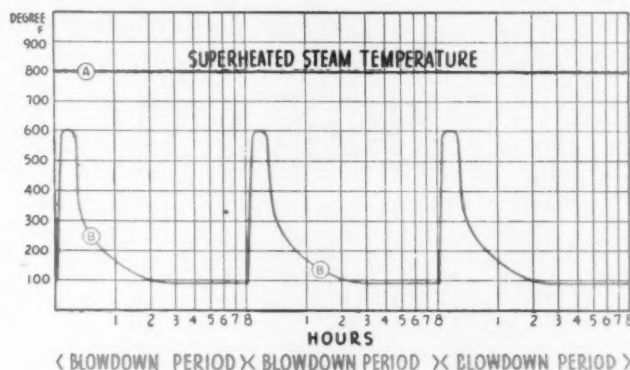
(Continued on page 146)

HOW **EDWARD** *Solved* THE SPECIAL PROBLEMS OF **BLOW-OFF VALVE SERVICE**

PROBLEM:

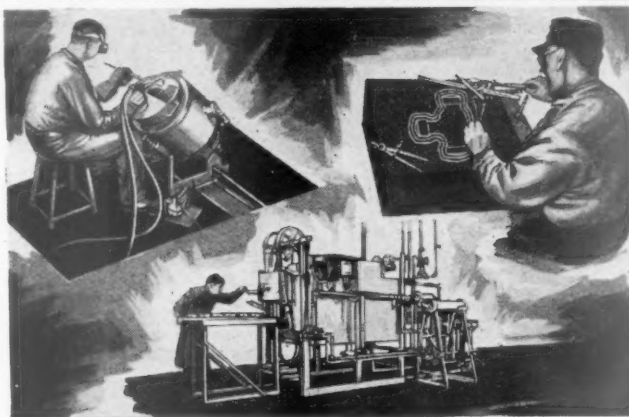
Two ever-present operating conditions put unusual strain on blow-off valves. They are, (1) abrasive action of grit, scale and sediment blown through the valve, (2) expanding and contracting of valve parts caused by wide and repeated variations in temperature.

The chart shows temperature variation in a typical blow-off valve installation. Line A indicates temperature constancy of valves operating in steam lines. Line B shows temperature fluctuations in blow-off valve operation from boiler room to saturated steam temperature in a matter of seconds, followed by long periods of cooling until the next blow-down period.



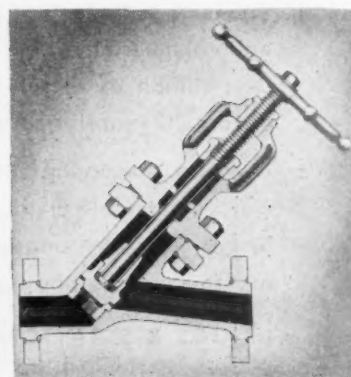
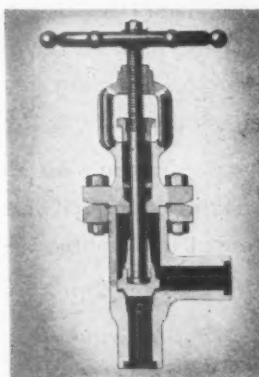
SOLUTION:

Edward attacked the two-fold problem in two ways. First, new techniques were developed for hardfacing seats, disks and other parts which get the greatest wear, and new heat treating equipment was designed for non-scaling heat treatment of parts *after finish machining*. Second, dies and patterns were designed to equalize metal sections so that distortion in heating and cooling was controlled and a valve closed tight under high boiler temperature would still be tight after cooling.



RESULT:

Designed specifically for boiler blow-down conditions, today's Edward blow-off valves fit any installation requirement, need almost no maintenance attention. Globe stop type principle is retained for tight seating, less packing wear, and easier repacking. Bulky or irregular metal sections that cause distortion of working parts in frequent heating and cooling are eliminated. Internal parts are few, hence there is less clogging, erosion, adjustment or replacement. These and other design advantages are outlined in detail in the new Edward Blow-Off Valve Catalog, No. 12-D. Write for your copy.



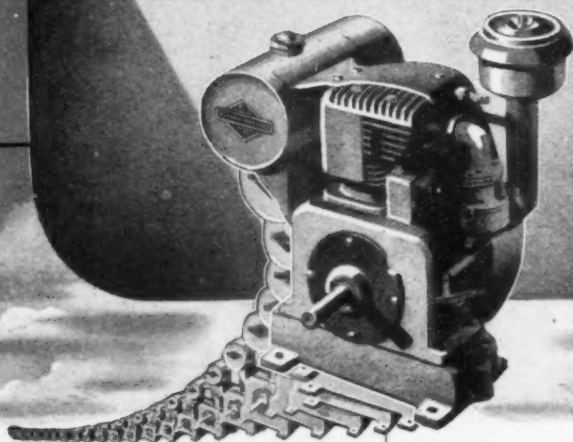
Edward blow-off valves come in straightway or angle designs, flanged or socket welding ends, for service from 150 to 1500 lb sp.

EDWARD *Steel* VALVES

THE EDWARD VALVE & MFG. CO., INC.
EAST CHICAGO, INDIANA

Look to Edward for the Best in New Steel Valve Developments

*Now-You Can Again
Specify*
BRIGGS & STRATTON
"Air-Cooled Power"



Good news for designers, engineers, manufacturers, dealers and users alike. It means you can have — not "just gasoline engines" — but Briggs & Stratton "Air-Cooled Power."

Precision manufacture and constant advancements in design and engineering account for the brilliant record of well over 2-1/4 Million of these trouble-free 4-cycle gasoline engines during 26 years of continuous production.

Only by specifying Briggs & Stratton "Air-Cooled Power" can you get all of the advantages which have earned for Briggs & Stratton unquestioned leadership as manufacturers of "the world's finest gasoline engines."

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U. S. A.

Air-Cooled Power



PLANETARY MILLING MACHINE



PLANETARY milling machine designed especially for high volume, low cost thread milling and form milling, is announced by the Plan-O-Mill Corp., 1511 E. Eight Mile Road, Hazel Park, Mich.

It is known as Plan-O-Mill No. 1. Completely anti-friction, it provides according to the manufacturer, thread milling accuracy with tapping speed. It incorporates Thy-mo-trol electronic feed control for split-thousandth control of feed-in and feed-around. Machine has facilities for either external or internal threading, and threads and mills parts up to 2" I.D. or O.D., or larger with offset head. It is operated by means of electronic control panel, which may be mounted on floor, wall or ceiling.

ASIDBAR PLASTIC IMPREGNATED WOOD

THIS plastic-impregnated wood has been developed by Koppers Wood Preserving Technical Dep't., Orrville,

Ohio, for structures exposed to rapid deterioration by contact with acid solutions or fumes. The plastic is forced deeply into the wood fibers by high pressures at temperatures sufficiently high to hold the compound in the liquid state. After impregnation period the compound sets-up to a plastic solid distributed in the cells of the wood to produce the material known as Asidbar. Treatment increases weight and hardness of wood and gives it a black surface which need not be painted. Properties of Asidbar make it suitable for many requirements of severe service conditions at temperatures to 180 deg. F. Asidbar can be worked with ordinary wood tools. Wear resistance of the wood is said to be increased by the increased hardness.

ELECTRIC SOLDERING IRON

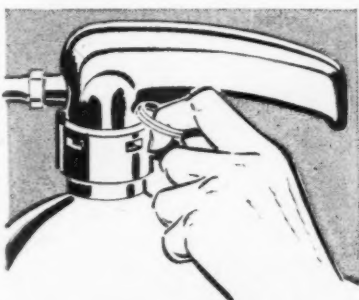


HY-TEMP is name of electric soldering iron made by Appliance Divn., Hydra-Aire, 626 No. Robertson Blvd., Los Angeles, Calif. Nichrome resistance wire is wound on pure copper or brass "core." Head is of pure brass. The tip is of pure soft copper, threaded for positive and continuous contact with head and core. Element "lead wires" are soldered to plug cord wires. Outer shell, cooling fins and spacers are all plated for heat insulation. Four sizes, 100 watt 3/8" tip; 150 watt 1/2" tip; 200 watt, 5/8" tip; 300 watt 7/8" tip. Quick soldering temperature.

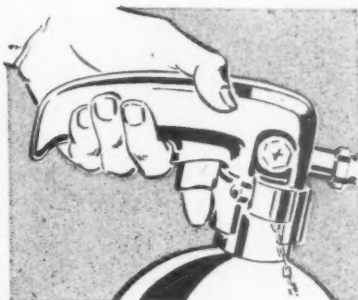
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Here's the HOW... and the WHY of TRIGGER-FINGER CONTROL

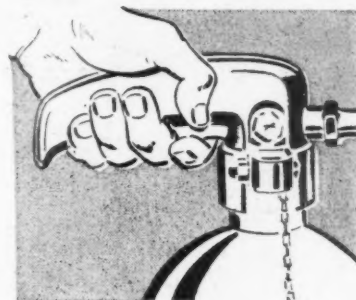
(Soon available on 10, 15 and 20-lb. Fire Extinguishers)



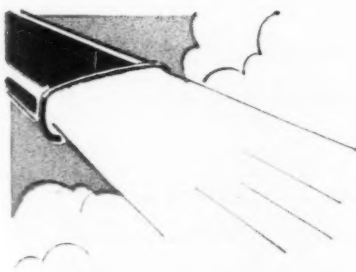
- 1.** Pull out non-jamming locking pin. Seating in two blind holes, it can't be turned... the ends cannot get bent over.



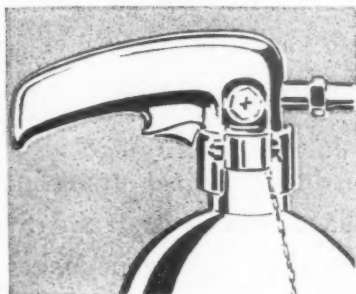
- 2.** Pick up easy-to-carry extinguisher. Balanced design and low center of gravity make carrying job simpler.



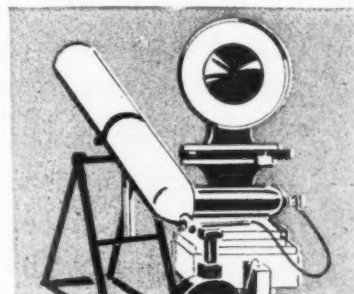
- 3.** Press the trigger. That's the simple, natural way to operate extinguisher — one finger does the trick.



- 4.** Get full flow at once. No half-way measures with this fast-starting valve... carbon dioxide goes right to work!



- 5.** Lock open—if desired. Just move trigger forward slightly to latch it in open position—no danger of fouling.



- 6.** Recharge without replacement parts. Merely connect carbon dioxide supply and fill extinguisher up.

Simple, safe and foolproof, this new trigger-control valve on 10, 15 and 20-lb. Kidde extinguishers speeds the attack on fires. A novice can operate it! Write for the full details today.

Walter Kidde & Company, Inc., 1150 Main Street, Belleville 9, New Jersey



The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc.

Kidde

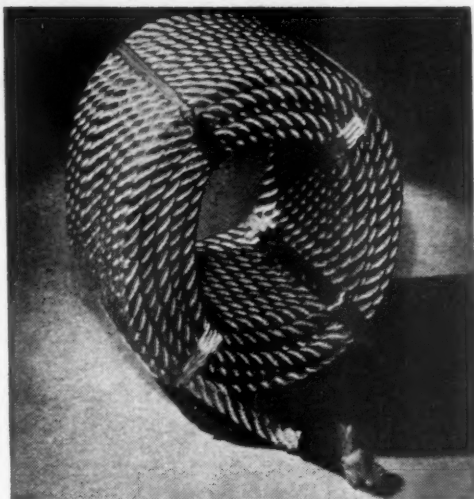


In rigging a scaffold for "high" work, care can save a dozen men from a fatal fall. Care, for instance, in making certain what *kind* of rope to *trust* with human lives and valuable property.

Plymouth Rope is *engineered* to give great strength and long life on perilous jobs. It is made with all the skill that modern science and over a century of New England craftsmanship have given the world's largest rope-makers. Plymouth Rope is specified by men who work and *live* with rope in the Dangerous Trades. Ropes of every size and construction are made by Plymouth from choice materials ranging from the finest, natural fibers to Nylon, Saran and filaments of spun glass. Plymouth Ropes are built to serve every standard purpose—and hundreds of highly specialized requirements.

For the *engineered* rope you can trust, use Plymouth Rope. For safety and efficiency in your own plant, have Plymouth make a complete survey and recommendations covering ropes for every purpose in all your departments. For specialized rope jobs, for able field engineering service in factories or for marine or farm use, consult your own supplier, or write to Plymouth, outlining your specific problems. Plymouth Cordage Company, 420 Lexington Avenue, New York 17, N. Y.—105 W. Adams Street, Chicago 3, Illinois—1006 Washington Avenue, Houston 2, Texas—70 Sacramento Street, San Francisco 11, California—In Canada: Sales Office: Cordage Distributors Limited, 500 King Street West, Toronto 2, Ontario. Mill: Welland, Ontario.

THE ROPE YOU CAN TRUST—BECAUSE IT IS ENGINEERED



Here is a coil of pure Nylon glider towline rope, developed by Plymouth for use by airborne forces. Nylon's most desirable characteristics are great tensile strength and higher elasticity than any natural rope fiber affords. It likewise provides high resistance to bacteria and mildew. Nylon is not, however, as well suited to resist chemicals and extreme heat as certain other Plymouth synthetic or Fiberglass ropes. If you have a rope problem not answered by natural fiber ropes we may be able to help you.



Here's Industry's Rope-book—free—Plymouth's handy, pocket-size digest. It will save time and money in any plant—contains rope size and strength charts—how to use block and tackle—splice slings—make rope last longer—how to tie useful knots for plant jobs—other practical rope use facts. Use the coupon.

PLYMOUTH CORDAGE PRODUCTS

ROPE · TYING TWINE · BINDER TWINE · BALER TWINE

THE ROPE YOU CAN TRUST



FOR EVERY INDUSTRIAL USE

Plymouth Cordage Co., North Plymouth, Mass.

Sirs: Send me "How to Put Rope to Use in Industry."

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COMPANY

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**MAY WE
QUOTE YOU**

*On Your
Screw Machine
Requirements*



This screw-machining plant can become an important department of your factory—through quick service of your requirements for such parts—precision-machined to perfection for immediate trouble-free assembly. Secondary operations such as heat treating, grinding, drilling—almost any processing operations you specify are obtainable here. Send your blue prints for quick quotations.

AMON-SCHULTE Co.

Emisworth, Pittsburgh 2, Pa.



COLD TANK CLEANER

COLD tank cleaner named Fuzee is announced by Turco Products, Inc., 6135 So. Central Ave., Los Angeles 1, Calif. Of interest to small users is the new dip-tank container illustrated in which Fuzee



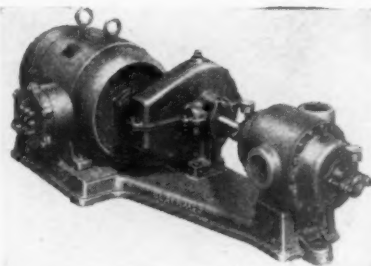
is also obtainable. A metal dip rack has been developed to fit the standard 5 gal. container; thus providing a simple means for cleaning small parts by immersion. Fuzee is self-sealing compound for use in cold tank immersion cleaning of pistons, fuel pumps, carburetors, etc., from which, according to the manufacturer, it quickly and thoroughly removes carbon, engine varnish and other adhesive dirt. Printed matter available.

HIGH CURRENT DISCONNECT SWITCH

new high current capacity "MC" disconnect switch with particularly wide application in mills, industrial plants, utilities, and in switchboard manufacture, is announced by Allis Chalmers Mfg. Co., Milwaukee. Hand or hook-stick operated, the new switch is available in sizes from 4,000 to 10,000 amps. at 750 v d-c maximum, and has a range of 3,000 to 6,000 amps. in a-c applications. Ratings of 3,000, 4,000 or 6,000 volts, hook-stick operated, with high strength insulators may also be supplied.

DEVELOPED for installations where sections of heavy current capacity a-c and d-c circuits must be isolated,

BUTANE AND PROPANE PUMPS



PRODUCTION on a new series of pumps for handling propane and butane is announced by Blackmer Pump Co., Grand Rapids, Mich. Basic design follows the Blackmer "bucket design" (swinging vane) principle. Currently in production are bulk plant pumps of 35, 50 and 90 GPM, furnished as pumps only, with single reduction oil-immersed drive and bedplate or complete with gearhead motor, and also 35 GPM truck pumps. Reservoir containing glycerine surrounds the stuffing box. Glycerine acts as both lubricant and sealing agent. No gas can reach stuffing box. Truck pumps have separate glycerine reservoir mounted in the cab or other convenient place, piped to the pump reservoir with return line to the tank.

(Continued on page 152)

"KNOW HOW"

IS THE SOLUTION TO
YOUR PROBLEMS ON

**SPECIAL WASHERS
AND
SMALL STAMPINGS**

Bring your troubles to us at Master Products. The experience gained in 25 years of solving Special Washer and Small Stamping problems enables us to serve you well.

OVER 10,000 SETS of TOOLS

at your disposal

If these won't give you what you want, our Tool and Die Department will make up special designs for you at reasonable cost. Just send us your blueprints or specifications.

Also a full line of Standard Washers in kegs or cartons.

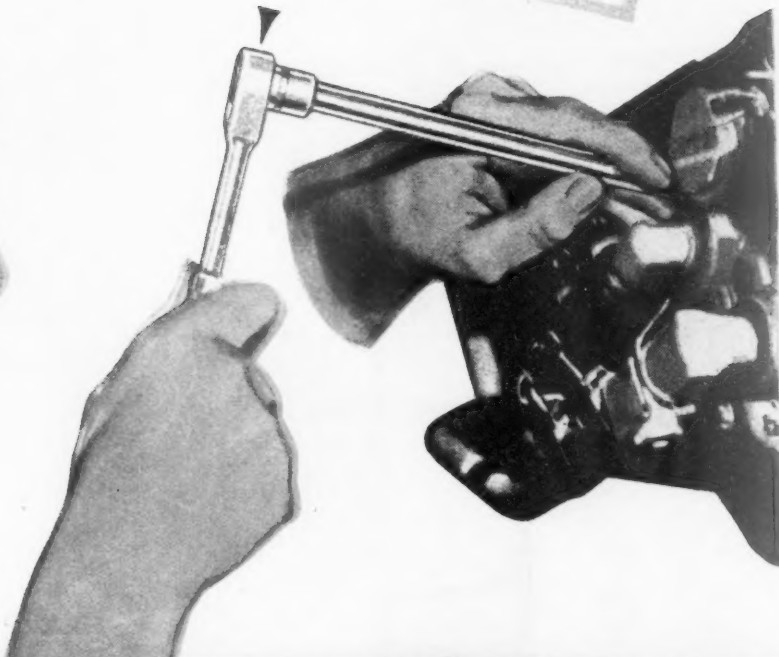
U. S. S. Washers • S. A. E. Washers
Riveting Burrs • Square Washers
Expansion Plugs • Machinery Bushings
Aircraft Washers • Discs
Light Steel Washers • Copper Washers
Brass Washers • Aluminum Washers
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**THE
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6400 PARK AVE. • CLEVELAND 5, OHIO



IT'S
A *Snap-on*



-THE NAME THAT

SAYS "QUALITY"

ON 3,000

TOOLS

To a vast army of skilled mechanics the brief phrase, "It's a Snap-on", sums up all they care to know of tool quality. Better tools mean added earning power, and they know that the Snap-on name on any tool pays off in speed and accuracy, in dependability and durability. Not only are Snap-on tools "the choice of better mechanics", but they are the choice of industry, widely used in every phase of production, assembly and maintenance. Write for catalog of 3,000 Snap-on tools.

THIS UNIQUE, NATION-WIDE ORGANIZATION SERVES TOOL USERS EVERYWHERE

Snap-on's own distributing organization provides direct, personal service to tool users throughout America. Snap-on's branch offices and warehouses in 38 principal cities cover all major industrial areas. From factory branches a force of trained tool specialists bring Snap-on tools and service right to the work bench in shops and factories. The helpfulness and efficiency of this 25-year old service have won the endorsement of tool users everywhere. Write today for catalog and address of nearest factory branch.

SNAP-ON TOOLS CORPORATION
8048-K 28th Avenue Kenosha, Wisconsin

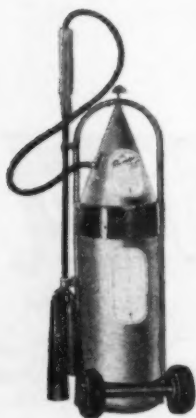




"NO INSTRUCTIONS NEEDED WITH THIS EXTINGUISHER!"

Cumbersome, antiquated extinguishers can delay and panic employees—your *real* fire-fighters!

Randolph "4", lightweight and easy to use, is designed for the amateur. Just ONE HAND snaps this unit from its bracket . . . one trigger-touch sends an icy cloud of carbon dioxide deep into the blaze—smothers gasoline, oil, paint, machine and electrical fires in *split-seconds!*



A dry, non-toxic gas, carbon dioxide cannot damage equipment or conduct electricity. It leaves no stain or liquid—no shut-down from water damage.

See, by actual demonstration, how fast-action Randolph "2", "4", "15" or "25" can mobilize and simplify *your* fire defense. For fire protection guidance and prompt delivery of equipment, call your nearest supplier, or write—

RANDOLPH LABORATORIES, INC. 8 EAST KINZIE STREET
CHICAGO 11, ILL., U. S. A.

ARO 1/4" IMPACT WRENCH



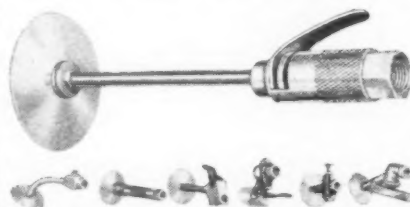
NEW 1/4" capacity pneumatic impact wrench with straight-type grip and lever control is announced by The Aro Equipment Corp., Bryan, Ohio. Tool has ample power for stall-proof operation, and is said to be particularly suited to assembly-line jobs of nut-setting and screw driving. Torque control mechanism prevents stretching or "burning" of threads. Calibrated adjusting screw enables operator to set any bolt or nut to any desired tension. Model 3012 has 3/8" square drive with capacity for 1/4" bolts and nuts; weighs 13 1/4 lbs., and is 6 3/4" in length. Small size enables the operator to use the tool in corners or other hard-to-get-at places. Tool is available with button control or in pistol grip type.

LINK-BELT OSCILLATING TROUGH CONVEYOR

NEW conveyor known as the Oscillating - trough conveyor for handling sharp, jagged, abrasive, wet, oily

or hot material, is announced by the Link-Belt Co., 307 No. Mich. Ave., Chicago, Ill. It consists of a flexibly supported plate steel trough of rectangular cross-section which is oscillated back and forth by an eccentric drive at a speed that will result in a forward travel movement of 20 to 50 ft. per minute for most materials, depending on the flowability of the material being handled and on the type of unit installed. It can be built to handle a wide range of capacities. Conveyors are designed in two types, namely Short Hanger and Long Hanger. Folder 2088 describes conveyors in detail.

SAFETY SHIELD FOR BLOW GUNS



ADAPTABLE to all standard types of blow guns, this transparent safety shield is announced by W. I. Martin & Co., 711 S. Dearborn St., Chicago 5, Ill. It is made of heavy gauge transparent plastic, formed into a concave shape to protect the operator. In addition to deflecting chips, shield also acts as a bumper to protect the gun from damage due to rough handling. One standard size, 2 3/8 inches in diameter, Cat. No. 150, fits all sizes and types of blow guns, and is said to be simple to install on guns with removable tips. Special attachments are available for blow guns without removable noses.

(Continued on page 154)

WINS ON UNIFORMITY



Recently one of the largest steel companies in the world (name on request) switched to DoALL Band Saws, only after making 29 very minute and concrete, comparative tests.

DoALL won on the basis of UNIFORMITY. Some saws cut faster on the first coil, then fell behind on the second or third, but DoALLs were most uniform, coil after coil, job after job.

A perfect saw for every material

You name it—there's a best DoALL saw for it, whether the job is external or internal cutting, straight line, contour shaping or 3-dimensional work.

DoALL Saws are available in two general styles, Precision and Buttress. Packed in 100-ft. coils in safety dispensing boxes or cut and welded to fit any band sawing or cut-off machine.

REQUIRE NO RESHARPENING

DoALL saw blades are so tough and give so much additional service that it is economical to run them until worn out and then replace with new blades.

PRECISION SAWS

Recommended for use on all ferrous metals. Come in widths from 3/32" to 1", pitches 6 to 32.

BUTTRESS SAWS

The finest for non-ferrous metals, aluminum, magnesium, plastics, laminates, ceramics, wood, etc. Widths 1/4" to 1". Pitches 2 to 6.

Write or phone for booklet illustrating and listing all DoALL Saws.

INDUSTRY'S NEW SET OF TOOLS



Contour Sawing



Band Filer



Surface Grinders



Magnetic Chucks
and Selector



Colloidal Oils



Dust Collector



SPEEDMASTER



Band Saws



Band Files



Gage Blocks
with Instruments

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Boston	ASP 6669	Detroit	TE 2-3060
Buffalo	PA 6666	El Paso	MAIN 7046
Chicago	SEE 1166	Grand Rapids	8-0922
Cincinnati	MAIN 3929	Hartford	6-7296
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Illinois

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Rochester	MAIN 5175	Syracuse	3-7212
Rockford	MAIN 227	Toledo	GA 8309
St. Louis	CE 3621	Toronto	RA 5191
St. Paul	EN 2399	Tulsa	4-8841
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Because of their Better Quality
LUNKENHEIMER VALVES
cost us LESS per Year of Service!



In buying a valve, as in buying anything else, it's *value* you're really after.

What is the measure of valve value? Length of service life, efficiency of performance, time and expense required for maintenance... these are the principal factors.

In these and in all other elements of value, Lunkenheim Valves have proved their superior worth throughout American industry, in wartime as in peacetime. Maintenance men everywhere rely implicitly on these *better valves* because they know they are *better values*—*quality-built* in every detail, assuring longer and more efficient service with the very minimum of maintenance trouble and expense.

For Better Valve Values, Specify Lunkenheimer!

THE LUNKENHEIMER CO., Cincinnati 14, Ohio, U. S. A.
 Offices: New York 13, Chicago 6, Boston 10, Philadelphia 7.
 Export Department: 318-322 Hudson St., New York 13, N. Y.

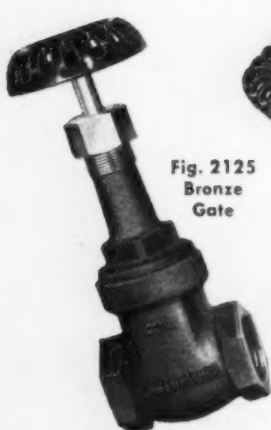


Fig. 2125
Bronze
Gate



Fig. 16
"Renewo Globe"

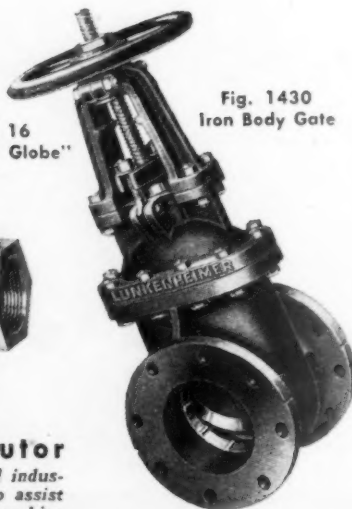


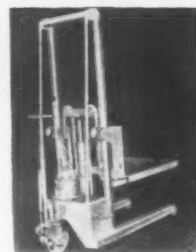
Fig. 1430
Iron Body Gate

Your LUNKENHEIMER Distributor

Lunkenheimer Distributors are located in the principal industrial centers. There is one near you fully equipped to assist with your maintenance and operation problems. Call on him.

**BRONZE, IRON, STEEL, AND CORROSION RESISTANT ALLOY VALVES—
 AIR DEVICES, LUBRICATORS, AIRCRAFT FITTINGS**

2000 LB. CAPACITY HIGH-LIFT TRUCK



EMPLOYING the same light-weight welded tubular and formed plate construction used in their 1000 lb. capacity unit, Lyon-Raymond Corp., 2433 Madison St., Greene, N. Y., has added a 2000 lb. capacity hydraulic high-lift truck to its line. The standard stock model has a platform 30" wide by 36" long with an elevating range from 6" to 60" above the floor. Ease of movement is provided by Timken equipped 10" diameter front and 5" diameter rear wheels. A foot operated floor lock, making two-point contact with the floor, will hold the truck firmly in position when desired. A two-speed hydraulic hand pump is standard equipment; motor driven hydraulic pump is available.

PORTABLE HIGH VACUUM GAGE

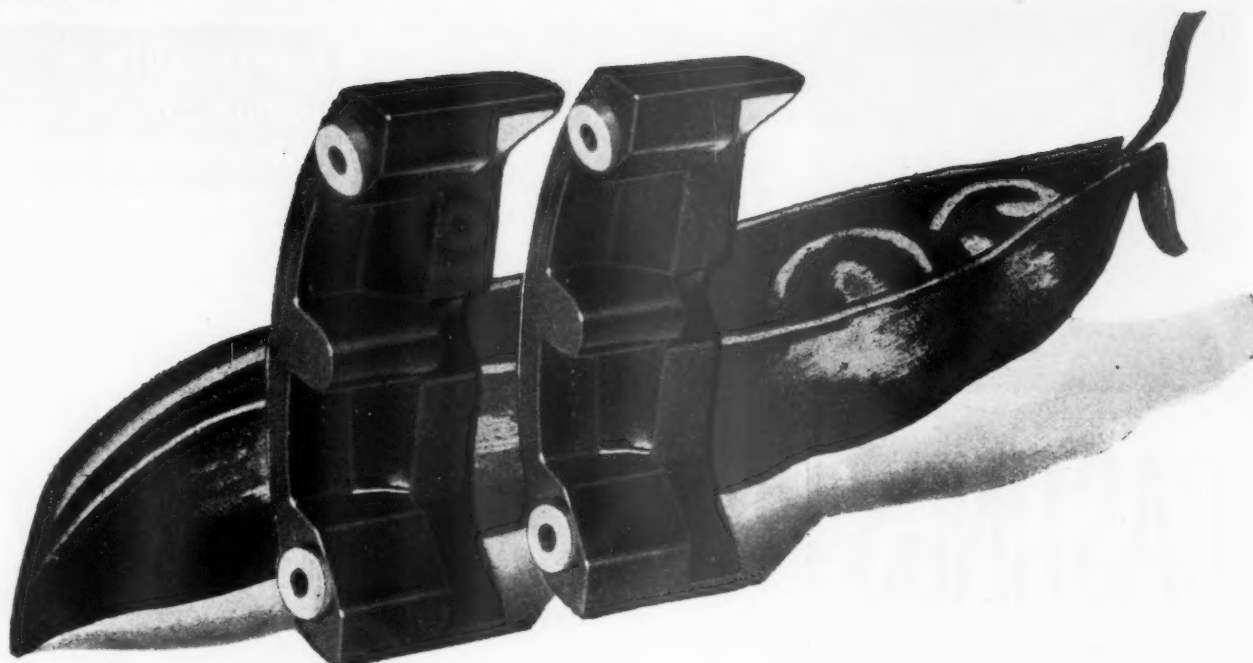
REDESIGNED McLeod type portable high vacuum gage is announced by the F. J. Stokes Machine Co., Philadelphia 20, Pa. It is stated that accurate readings, within the micron range, are obtainable with this instrument even when condensable vapors, such as water, oils and alcohol are present in the vacuum system. This is accomplished by means of a compact, built-in, renewable chemical cartridge which protects the gage by absorbing all such vapors. Manufacturer states that reading the gage is simple as reading a thermometer. Gage is available in two portable models, 0 to 5000 microns (5mm) and 0 to 500 microns.

MACHINE TOOL STRAINER



NON-clogging industrial strainer for use with turret lathes, screw machines, grinders and all other machine tools that employ a cutting oil or coolant flow, known as the Strainco-Metex Unit, is announced by Strainer Products Corp., North Willow St., Montclair, N. J. Units are said to provide long period capacity to hold dirt, chips and grit. Refills are easily installed, and old ones washed and ready for use in matter of minutes. Units are supplied in types, sizes and capacities for every size and type of machine tool.

(Continued on page 156)



**MORE
ALIKE**

... than two peas!

To a good plastics molder, there is no monotony in sameness.

General Industries produces molded plastic parts with that precise uniformity which insures faster, more economical assembly and dependable performance of finished products. Our experienced operators and modern facilities for compression, transfer and injection molding can handle the production of large parts or small, in any quantity.

When the present load of military production is relieved, we shall once again stand ready to

offer you the experience and equipment necessary to help mold salability and satisfaction into your postwar products.

THE GENERAL INDUSTRIES COMPANY

Molded Plastics Division

ELYRIA, OHIO



Chicago: Phone Central 8431
Detroit: Phone Madison 2146
Milwaukee: Phone Daly 6818
Philadelphia: Phone Camden 2215

THE

**GENERAL
INDUSTRIES
COMPANY**

MOLDED

PLASTICS



CASTINGS

- ★ Gray Iron
- ★ Semi-Steel
- ★ High Test Semi-Steel
- ★ Any Size up to one ton

Two modern foundries equipped for fast, efficient production can meet your casting requirements.

THE FOREST CITY FOUNDRIES CO.

2500 West 27th St.
Cleveland 13, Ohio

PHONE PROspect 5040

SILVERED BOWL LAMPS

SILVERED bowl lamps, particularly suitable for indirect fixtures in offices and various commercial installations, in wattages ranging from 60 to 1000 are announced by Sylvania Electric Products, Inc., Salem, Mass. Outside mirror coating of silver will not dull, tarnish or deteriorate during rated lamp life of 1000 hours for all sizes except 100 watt which is rated at 750 hours. Porcelain sockets are recommended for lamps larger than 150 watts, and lamps in these sizes are designed for burning with base up. Smaller sizes may be burned in any position. All sizes supplied with inside frosted finish.

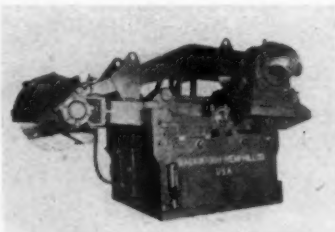


FLAME RESISTANT MOLDING RESIN

Chemical Co., Springfield, Mass. The material is said to be the first commercially available impression molding resin that provides plastics-glass cloth laminates which are self-extinguishing and do not support combustion. Impression molding resins require little or no pressure for fabrication and are used in conjunction with paper, cotton or glass cloth or with other relatively inexpensive sheet materials. The combinations provide a high degree of structural strength and permits manufacture of parts almost unlimited in size. The new resin is designated as Thalid XR540.

NEW flame resistant Thalid impression molding resin is announced by the Plastics Division of Monsanto

TILTING HOT SAW



SIMPLICITY in principle and operation, and compactness that makes it readily adaptable for installation where space is limited are two features of the new fifty-inch tilting hot saw produced by Mackintosh-Hemphill Company, Pittsburgh. The saw, powered by a 150 hp motor through a V-belt drive, has a peripheral cutting speed of 22,000 feet per minute, and is said to be well adapted for cutting billets, rails and similar types of sections. A construction feature is the incorporation of a new mandrel with Timken bearings having a force-feed circulating oil system. Mandrel head is removable to facilitate the changing of V-belts. Has variable speed drive with a wide range of feeds.

(Continued on page 160)

LIGHTER LOAD + LONGER LIFE = LOWER SHOVELING COSTS

1 The strongest light shovel ever made — 13 ga. up the middle to meet the wear and strain, tapered to 17 ga. at the sides. 11" socket.

2 Tubular shank, deep hang, perfect balance.

3 "Surface Peened" after heat treatment for maximum toughness of steel.

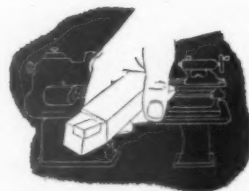
Send for Catalog and Prices



THE UNION FORK & HOE CO.
692 Hocking St., Columbus 15, Ohio

RAZOR-BACK

Only Shovel with a Backbone
Industrial Forks, Asphalt & Road Rakes



KENNAMETAL CEMENTED CARBIDE TOOLS, BLANKS, and SPECIALTIES

● FOR FAST, ACCURATE METAL-CUTTING . . . complete selection of single-point tools and milling cutters.

● RESIDENT TOOL ENGINEERS in 24 cities available for expert help in proper selection and correct use.

● WAREHOUSES in Chicago, Cincinnati, Los Angeles, New York, and San Francisco to expedite delivery.



KENNAMETAL

SUPERIOR CEMENTED CARBIDES

KENNAMETAL Inc., LATROBE, PA.



Special Designs

To meet special needs of certain industries, H & D Package Engineers have utilized the strength, durability, economy and light weight qualities of corrugated board for many types of products. The unique shipping box illustrated combines efficient storage, quick set-up, easy handling and adequate protection with distinctive appearance. Note how the octagon angle construction provides high rigidity and how well the company's trademark is printed on the smooth exterior surface. However unusual your product may be, H & D can prepare a special box to meet your requirements.



H&D Post-War Packaging Idea OCTAGON BARREL

The octagon barrel is an example of package engineering at its best. A problem was presented and H & D Package Engineers solved it with a package that not only met the necessary requirements but also provided a number of "extra" values in addition. H & D's book, "How to Pack It" is full of packaging ideas for every type of product. Send for your copy —today.

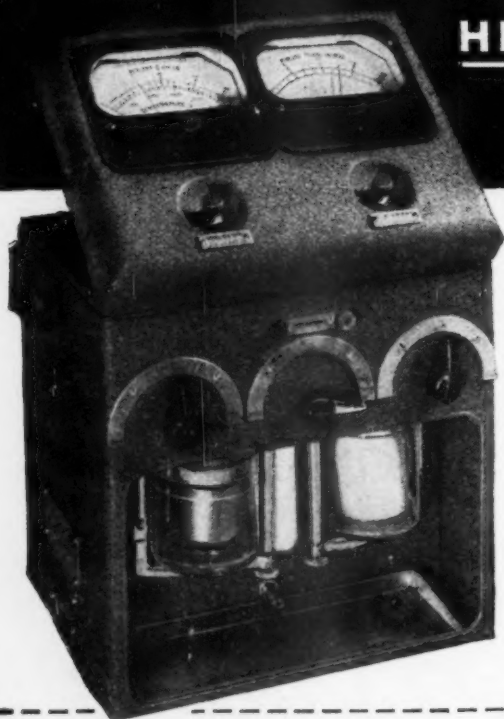
Hinde & Dauch

AUTHORITY ON PACKAGING

THE HINDE & DAUCH PAPER COMPANY, 4523 DECATUR STREET, SANDUSKY, OHIO
 Factories in BALTIMORE • BOSTON • BUFFALO • CHICAGO • CLEVELAND • DETROIT • GLOUCESTER, N. J.
 HOBOKEN • KANSAS CITY • LENOIR, N. C. • MONTREAL • RICHMOND • ST. LOUIS • SANDUSKY, OHIO • TORONTO

How many dollars... do your furnaces **BURN?**

**YOU CAN FIND OUT IN A FEW
MINUTES WITH THE INDUSTRIAL
HEAT PROVER**



This unique instrument indicates simultaneously the percentage of unburned fuel, or oxygen present in flue gases... and it does it in just a few minutes.

With this data the Cities Service engineer can show you at once how to *save* on fuel costs, and what this saving will mean to you each year in dollars and cents.

The Cities Service Industrial Heat Prover has been used successfully with every kind of fuel and with every type of combustion equipment in this country.

Also used successfully for controlling furnace atmospheres in the heat treatment of steel.

For information leading to a demonstration on your own equipment, contact Cities Service or...

Cities Service Oil Co.
Room 513, 70 Pine Street, New York 5, N. Y.

Gentlemen: Please send me further information on the Cities Service Industrial Heat Prover—at no obligation to me.

Name

Title

Company

Address

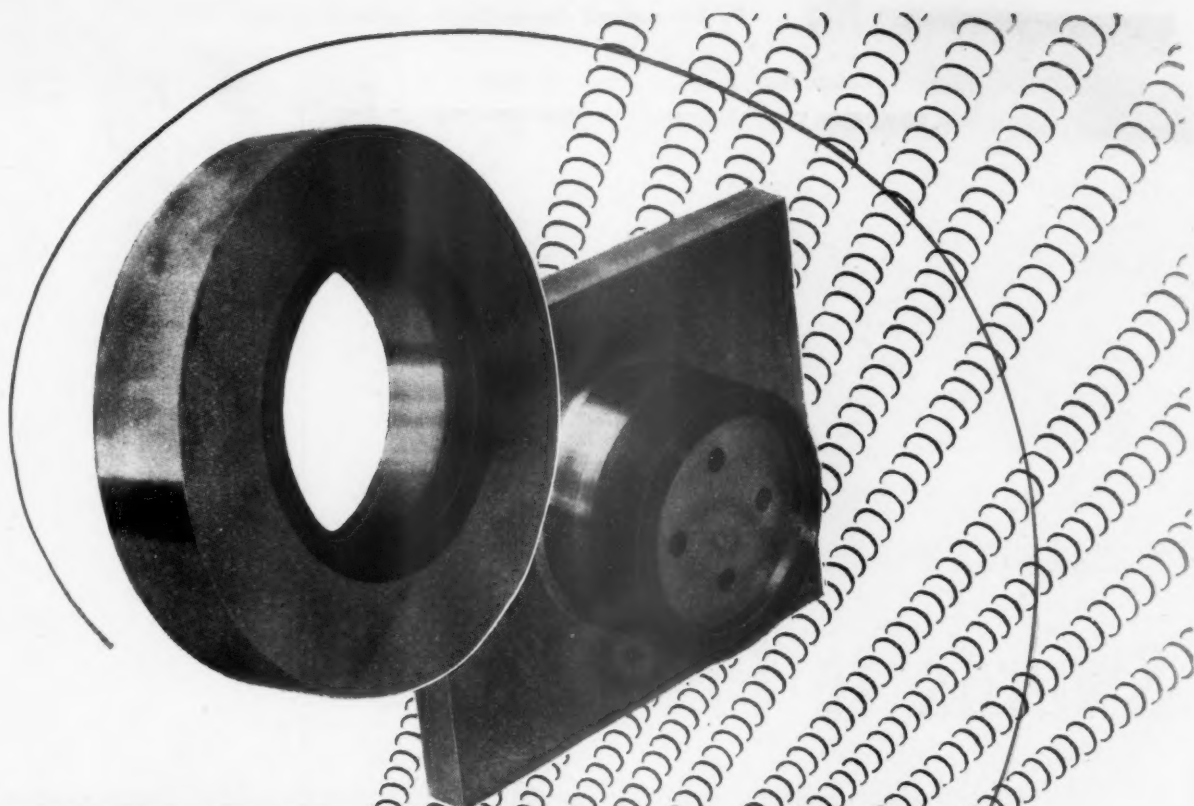
City State

**MAIL THIS
COUPON
TODAY**



(Available only in
Cities Service Market-
ing Territories East
of the Rockies)





over a **HALF BILLION** "cookies"
 and **STILL GOING**

with these **Diecarb** dies

SEVERAL years ago, in a Pittsburgh electrical manufacturing plant, a disc or "cookie" die was placed in operation. It was made of Diecarb, Firth-Sterling's newest, original, sintered carbide development for blanking dies. This "cookie" die blanked a circle of silicon electrical sheet .025 inch thick, to be used in rotors and stators.

It proved so successful that since then two other similar Diecarb dies have been put to work—all averaging 50 to 60 million blanks per grind, as compared with 90,000 pieces per grind with high speed steel dies.

The original die, at the latest count, had produced the unprecedented total of over a half billion stampings, and was still going!

In fact, the life of these remarkable Diecarb dies is not yet determined because all dies so far made are still in use.

Diecarb can be used for blanking and forming a diversity of materials including metals, plastics, paper, etc. It operates successfully on thicknesses up to 7/16 inch. It is proving unmatched for high production operations, saving both downtime and maintenance.

If you have a product that requires blanking or if you are planning one—call in Firth-Sterling now to test the possibilities of Diecarb.

GET IN TOUCH WITH US

A complete Diecarb engineering service is at your call—for designing complete dies; for aiding in application of Diecarb to die shoes by brazing; shrink-fitting; press fitting and mechanical matrix; and for proper grinding.

Firth-Sterling
 STEEL COMPANY

OFFICES: McKEESPORT, PA. • NEW YORK • HARTFORD • PHILADELPHIA
 PITTSBURGH • CLEVELAND • DAYTON • DETROIT • CHICAGO • LOS ANGELES



★ SEE BELOW

NORTON ABRASIVES

*"They shall beat their swords into
ploughshares"* —ISAIAH II: 4



Swords to Plowshares

Conversion to peaceful pursuits will bring its own battles
—to do things better, faster, cheaper and with less labor.

But there's one modern, speedy, economical method that
any metal working plant can so quickly and easily adopt

METALITE BELTS IDLER BACKSTANDS

... with the minimum expenditure of time and money
and no loss of present floor space.

Just install an Idler Backstand behind your present lathe,
substitute for the set-up wheel a resilient contact wheel,
slip a Metalite Cloth belt over the latter and the pulley
on the backstand, and you're off to higher speeds, better
finish and sweeping reductions in "cost per piece sanded."

The examples shown in our illustrated bulletin give far
more convincing details than we can possibly include in
this short text. Just a few lines on your letterhead asking
for "Plus Factors" will bring it by return mail.

★ Left: Grinding Machete Blade.

Right: Finishing Plow Points.


BEHR-MANNING

(DIVISION OF NORTON COMPANY)

TROY, N. Y.

Quality Coated Abrasives Since 1872

NEW TYPE SNAP GAGE



NEW type snap
gage announced by
Federal Products
Corp., 1144 Eddy
St., Providence, R.
I., "magnifies di-
mensional varia-
tions so that you
can see them."
New gage is known
as the model 1340.

It is a single purpose type of gage, the
dial of which is graduated in .0001", has
a range of .008", and can be made to suit
any dimension between 1/8" and 1 1/2". It
weighs about 7 ounces. It eliminates
human variations. It is especially prac-
tical for furnishing the dimensional data
necessary to Statistical Quality Control
practice. Printed matter available.

HOT DIP PROTECTIVE WRAPPING COMPOUND

DIPWRAP is
name of hot dip
protective com-
pound for use in
shipping and stor-
ing metal, semi-

metal assemblies, parts and tools. It gives
complete protection against corrosion and
rough handling. It is quickly applied by
dipping the object to be protected into a
container of melted Dipwrap, either manu-
ally or by some simple mechanical de-
vice. Coated part is allowed to cool for
5 to 10 seconds and cased or in some
instances shipped or stored "as is." Coat
is easily removed as one would peel a
banana. Toughness is said to protect
sharp cutting edges on chisels, cutters,
millers, drills and other machine tools.
Variations in temperature between 150
deg. F and 30 deg. below zero will not
cause coating to rupture. Printed matter
available.

STEEL STOOLS



STEEL stools, available in five heights
and 80 models are being marketed by
Lyon Metal Products, Inc., Aurora, Ill.
Stools are designed from physiological
standpoint to meet posture needs. Unit
illustrated is 26" stool with adjustable
back and pressed wood seat (over steel)
and steel feet. It is of all-welded con-
struction; seat is 14" wide; strong chan-
nel brace provides foot rest.

(Continued on page 162)



10 1/4 MINUTES

Here's an actual photograph of time being wasted. A bulb on the worker's wrist records each move as he shifts castings from floor to platform truck after machining. The picture is a record of waste—for every move is unnecessary!

count the moves and count the cost!



9 1/2 SECONDS

When your loads stay on skids, they're ready to roll with a sweep of the Lift-truck handle. No loading and unloading with every move!

Here the camera has caught a few of the costly moves in one typical plant routine. It goes like this: First the worker unloads castings from platform truck to floor. Next the machinist, as he completes individual pieces, places them in another pile on the floor. And finally, as shown above, the worker returns to *reload* his truck.

You can eliminate all this! Put your loads on *skids* and put an end to needless handling. Loads are ready to move at a moment's notice!

And just as Barrett Skids allow big, profitable *unit loads*, so Barrett Lift-trucks

make them easy to move. Together they take materials from machine to machine . . . floor to floor . . . or in and out of trucks . . . with the speed and ease that enables *one man* to handle more than 3 or 4!

Ask to see this Barrett Lift-truck System. A Barrett engineer will demonstrate without cost or obligation. For more information, write

BARRETT-CRAVENS COMPANY

3280 West 30th Street • Chicago 23, Illinois

Representatives in All Principal Cities

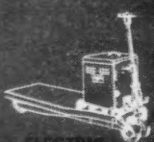
Canadian Licensee: S. A. Armstrong, Ltd. • Toronto, Ontario



Looking for ideas to save time and labor? You'll find plenty in your free copy of the Barrett Junior Catalog!

BARRETT

ONE MAN DOES MORE THAN 3 OR 4 . . . WITH A BARRETT



ELECTRIC LIFT-TRUCKS

**Barrett
Handling
Equipment**



HAND LIFT-TRUCKS



SKIDS



BARREL TRUCKS



NIFTY SYSTEMS



PORTABLE ELEVATORS



STEEL STORAGE RACKS

BASE SOCKET

ILLUSTRATION shows the new Woodwin Edi-Swan base socket. It takes the standard double contact Edi-Swan bayonet type base lamps. Do not confuse with standard American automobile lamp as auto lamp base is smaller. This socket is wired by unscrewing the top ring and attaching the wires under the heads of the brass screws in the cap. Socket has spring contacts against which lamp base presses. Socket is available with American thread ($\frac{1}{8}$ "-27), or the standard French thread (11 mm. $7\frac{1}{2}$ threads per cm.), sometimes called k/8" French thread. Made of brass. Double contact. C. D. Wood Electric Co., 826 Broadway, New York 3, N. Y.



REMOVABLE MOUNTING BRACKET CAPACITORS

SMALL capacitors are now available with new removable mounting brackets, according to General Electric's Transformer Divn., Pittsfield, Mass. These brackets can be obtained with all small rectangular case capacitors for use in either a-c or d-c applications, and can be clamped over either the top or bottom flange of the case thus permitting the unit to be mounted in an upright or inverted position. Brackets are accurately die formed from steel punchings, and they have a durable, corrosion-resistant finish of lacquered zinc plate. Small, narrow capacitors have brackets with a single mounting hole, but where width of case permits, wider bracket with two mounting holes is used.

ELECTRONIC CONTROLS ON SURFACE GRINDER



ILLUSTRATION shows No. 24 duplex rotary surface grinder developed by Hanchett Manufacturing Co., Big Rapids, Mich. Electronic controls give fingertip control to separate operation of the two rotary work tables. Machine is said to practically eliminate grinding downtime. It is characterized as two machines in one. It is equipped with two rotary or magnetic chucks instead of one. With these two magnetic chucks practically all the downtime required for cleaning and reloading is eliminated. Principles of electronics used make it possible to attain variable speed control hitherto unachieved. A 25 hp, 900 rpm motor of the built-in type is used to run the grinding wheel. Complete details on request.

(Continued on page 164)

There's a REX-TUBE Type to Fit the Most Exacting Application

Rex-Tube isn't a cure-all, of course. But within its capacity this rugged, flexible metal hose will handle efficiently and economically just about anything you give it to do. There are sizes and types, for example, that range from oil can spouts . . . to heavy duty tubing used in steaming out tank cars.

Production men throughout industry know that many of their exacting problems can be solved with Rex-Tube or with the other flexible metal hose products in the complete C.M.H. line, including: Rex-Weld, Rex-Flex S.S., Avioflex and Cellulined. We can help you, too! Write today for Booklet E-144.

Flexible Metal Hose for Every Industrial Use



CHICAGO METAL HOSE CORPORATION
MAYWOOD, ILLINOIS



Plants: Maywood and Elgin, Ill.

*they're ready
and able!*

DOW PLASTICS

SARAN



PRESENT AND POTENTIAL USES:

Plating masks; chemical apparatus; pump parts; valves and valve parts; name plates; steel parts; paint brush handles; insulation; stoppers; funnels; bottles; closures; plumbing parts and equipment; wire coating; pipe and tubing for installations requiring chemical and corrosion resistance; nonflammable for textiles.

PROPERTIES:

Resistant to chemicals, abrasion, oxidation, water, and moisture; good electrical insulator; excellent thermal insulator; non-flammable; tough; flexible; dimensionally stable; not recommended for installations requiring temperature resistance above 170° Fahrenheit; maintains flexibility at very low temperatures.

STYRON



PRESENT AND POTENTIAL USES:

Lighting fixtures; insulators; battery cases; hydrometers; funnels; closures; food handling equipment; pharmaceutical, cosmetic and jewelry containers; costume jewelry; novelties; refrigeration parts; pens; pencils; liquid dispensers; exotherms; chemical apparatus; dishes; lenses; decorative objects; trim.

PROPERTIES:

Crystal, translucent or opaque; broad color range; excellent high frequency electrical insulator; can "pipe" light through rod at angles and around bends; resistant to acids and many alkalis; low water absorption; light weight; stable at low temperatures; limited solvent resistance; available only in rigid forms.

ETHOCEL



PRESENT AND POTENTIAL USES:

Housings; radio cabinets; aircraft parts; containers; insulators; flashlight automotive parts; excutichones; refrigerator parts; tool handles; rods, tubes, bars, and special extruded shapes for kitchen items; automotive and aircraft window frames; modern window blinds. Also used as tape and wire coating.

PROPERTIES:

Extra tough, particularly at low temperatures; attractive colors; pleasant to handle; transparent or translucent; dimensionally stable to varying climatic conditions and temperatures; light in weight; available in wide range of flow; not available in crystal color; limited chemical and solvent resistance.

STYRALOY 22



PRESENT AND POTENTIAL USES:

Communication cables; handles for tools of many kinds, as well as numerous household appliances, etc.; gaskets; bushings; end forms; floor mats; scuff plates; and many other applications still to be ascertained. Ideally suited to extrusion of complex cross sections and readily fabricated by other molding techniques.

PROPERTIES:

High dielectric strength, low power loss over all frequencies. Power factor only .005 at 100-300 megacycles. Flexible and shock resistant from -90° F. to 212° F. Specific gravity less than 1. Water absorption only .2 to .5%. Resists heat, flame, and most chemicals. Resists petroleum, oxidation, abrasion. Easily machined.

Let's work it out together



We at Dow know from experience that success in plastics is not a one-man nor even a one-industry job. It calls for the combined skill and cooperation of manufacturer or designer, plus fabricator, plus raw materials producer. Working together, this team saves time and money and puts plastics to work successfully. Call us—we'll do our part.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle



STYRON • STYRALOY • SARAN • SARAN FILM
ETHOCEL • ETHOCEL SHEETING • STRIPCOAT

Efficient Manufacturing Facilities Available

for sub-contracting

- ★ Sub-assembly and Complete Assembly Operations
- ★ Automatic - Screw Machines
- ★ Drilling, Tapping and Centerless Grinding
- ★ Electro-Plating

Facilities of three "E" Award manufacturing plants - conveniently located to insure "on schedule" production at the lowest costs - expert engineering service accustomed to precision manufacturing.

Company Representative will call to Discuss Details

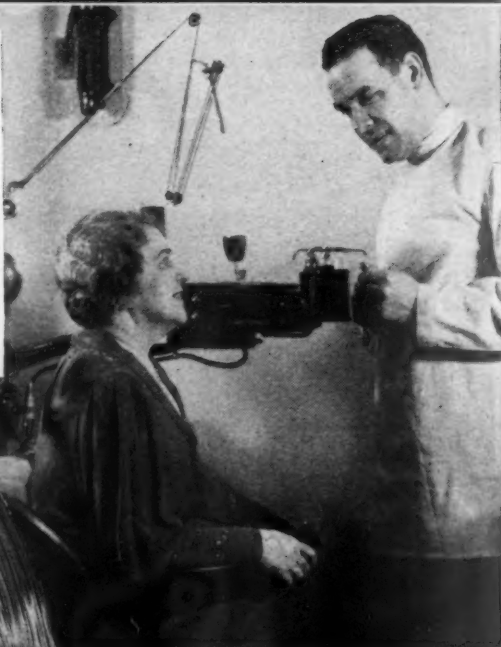
John R. Wald Company

PHONE 682
HUNTINGDON, PENNSYLVANIA

JOHNSON Wire

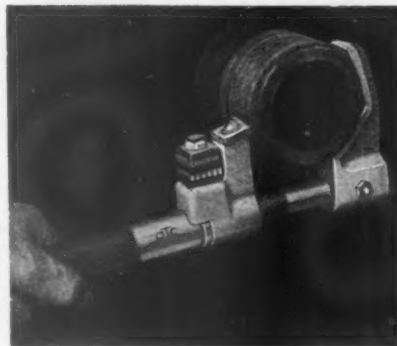
The wire of a thousand uses — another interesting outlet — dentistry — nerve extractors.

XLO MUSIC WIRE in all standard sizes from .003" to .200". In units of ¼ lb., ½ lb., 1 lb., 5 lb., or catchweight coils.



JOHNSON STEEL & WIRE CO., INC.
WORCESTER 1, MASSACHUSETTS.
NEW YORK AKRON CHICAGO LOS ANGELES

OUTSIDE THREAD CHASER



NEW type of outside thread chaser, OTC No. 897, simplifying the job of restoring battered threads on axle housings, cages and other parts, is announced by Owatonna Tool Co., 349 Cedar St., Owatonna, Minn. Handles from 1" to 5" diameter, and may be quickly adjusted to the desired size. Simply apply on good threads, tighten slightly, then back the tool off over the damaged threads, increasing pressure a little on each succeeding cut.

LOW CAP. HIGH PRESSURE PUMP

NEW low capacity high pressure pump, adaptable for handling thin liquids or water up to 500 lbs. pressure and viscous liquids and oils to 1000 lbs. pressure, is announced by the Bump Pump Co., La Crosse, Wis. Flow is constant regardless of pressure, and pump will operate on vacuum as high as 27 inches. It is so designed that the impellers can be changed to handle any capacity from 60 gph up to 480 gph. Pump is driven directly by standard speed motor 1200-1800 rpm, and can be furnished for either side intake and discharge or intake and discharge on the face plate. Pump can be mounted in any position, as bearings will support either vertical or horizontal mountings. Available in any suitable metal—cast iron, bronze, stainless steel, etc.

BATTERY SUPERCHARGER



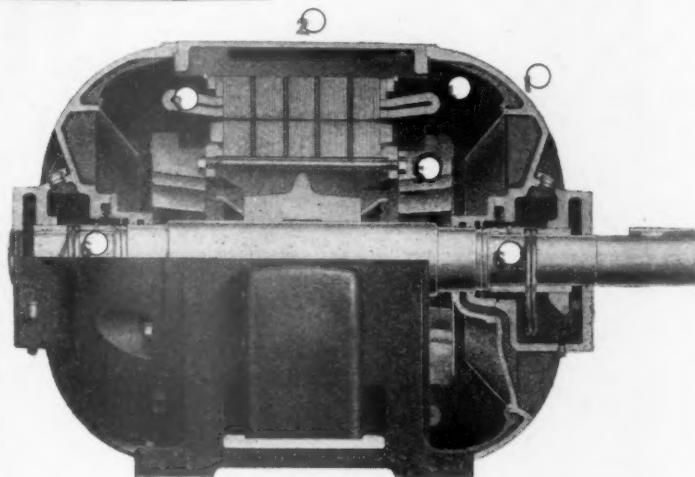
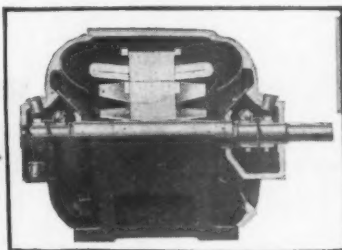
ILLUSTRATION shows Fast Battery Supercharger being produced by Benwood-Linz Co., St. Louis, Mo. Function is to deliver direct current of the required rating for the quick no-removal charging of storage batteries. Maximum time required is 20 minutes. Supercharger is said to detect and register shorted and defective batteries, sulphated batteries, and provides for the elimination of sulphation. Unit is portable, weighing 130 lbs; wheels have rubber treads. Two types available, one to operate from 100 volt 60 cycle ac; the other from 220 volt 60 cycle ac.

(Continued on page 168)

SAME STRONG POINTS OF CONSTRUCTION

from 1 hp

to 2000 hp



Now all your drives — large and small — can have standard G-E Tri-Clad induction motors with the famous protective features that guard against **PHYSICAL DAMAGE, ELECTRICAL BREAKDOWN, OPERATING WEAR AND TEAR.**

Tri-Clad, in its wide range of types and sizes (recently increased to 2000 hp), is G.E.'s most widely used (integral-hp) motor. For complete details on ratings, characteristics, and dimensions, write for Bulletin GEA-3580. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.

- 1 Cast-iron frame and rigid, cast-iron end shields protect the motor from external blows and accidental abuse.
- 2 Completely enclosed upper portion of frame guards against entry of falling objects and dripping liquids; keeps chips and the like from vital motor parts.
- 3 Windings of Formex* wire—one of the toughest magnet wires yet developed—resist heat aging, heat shock, and abrasion.
- 4 End windings are coated with Glyptal* varnish, providing a tough, hard finish that withstands moisture, oil, and abrasion.
- 5 Low-velocity, double-end ventilating system keeps the motor running cool and prolongs insulation life. One-piece, cast-aluminum rotor (used on all but the largest sizes), with integrally cast fans, is practically indestructible.
- 6 Bearings have extra capacity to take heavy shaft loadings from any direction. Lubrication is convenient, its effectiveness well proved.

*Trade-mark reg. U. S. Pat. Off.

Buy all the BONDS you can — and keep all you buy

750-296-8030

HERE'S TODAY'S WIDER RANGE OF STANDARD SIZES	
Tri-Clad Type K (Low starting current, normal starting torque)	1 hp to 2000 hp at 1800 rpm
Tri-Clad Type KG (High starting torque, low starting current)	5 hp to 200 hp at 1800 rpm
Tri-Clad Type KR (High starting torque, high slip)	Available to 100 hp in speeds required for high-slip flywheel drive (punch press, etc.)



GENERAL ELECTRIC

LAY-SET'S

GREEN-LUBE M



• GREEN-LUBE is a superior grade lubricant made to our own specifications. It clings to the wires longer—protects them better—enables them to give increased service.

ACCO

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma, Bridgeport, Ct.



HAZARD WIRE ROPE DIVISION
AMERICAN CHAIN & CABLE

In Business for Your Safety

MAKES IT STILL BETTER



HAZARD'S All-Green rope is **LAY-SET** Preformed made of Improved Plow Steel — the best rope. Now this rope is *still better*, because it is completely protected with **GREEN-LUBE** *Every strand* is packed with our new superior green lubricant which gives added life to every wire. Not a single strand, not two strands, but every strand—yes, even every individual wire is completely covered by **GREEN-LUBE** The all-green color is an added protection to the highest grade rope made: **LAY-SET** Preformed I. P. S. Use only Hazard's All-Green rope.

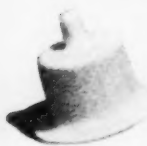


port, Co





CAN YOU REALLY LAMINATE FABRICS AND RESINS INTO SHAPES?



YOU BET WE CAN: We make SHAPES exclusively . . . short or long runs—all kinds, colors, sizes—with all the strength, dielectric qualities, light weight and machinability of laminated sheets, rods and tubes.



SPECIALISTS
in SHAPES laminated from resins and fabrics (glass, synthetic or cotton) to exacting needs of America's leading industrial engineers. Tell us your shape requirements. We probably can submit samples similar to your needs. Write to Andover Kent, New Brunswick, N. J.—TODAY!

Andover Kent

YOUR BEST SOURCE FOR
Laminated Shapes

UNBREAKABLE • LIGHT • NON-ABSORBENT

Immediate Delivery!



Model AR

You can depend upon Redington to make immediate delivery of these sturdy, 100% accurate Counters — "Watchdogs of Production." In models to fit punch presses, pumps, screw machines, packaging machines . . . conveyor lines, can making and box making machinery . . . in fact, all types of machinery and production lines. Easy to install. Write for Catalog.

F. B. REDINGTON CO.

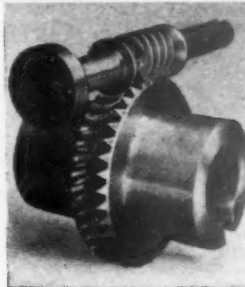
103 So. Sangamon Street

Chicago 7, Ill.

SIMONDS GEARS

**QUALITY GEARS
OF ALL TYPES**
SPUR • BEVEL
MITRE • RACKS
WORMS
WORM GEARS

Cast and Forged
Steel, Gray Iron
Bronze
Silent Steel
Rawhide, Bakelite
Made to Your
Order



Simonds Gears are made to meet the strictest demands—the result of over 50 years' experience and master craftsmanship in building quality gears. Large sizes are a Simonds feature—spur gears are cut up to 12 feet in diameter.

*Distributors for RAMSEY
Silent Chain Drives and Couplings*

**THE SIMONDS
GEAR & MFG. CO.**
25TH AT LIBERTY
PITTSBURGH 22, PA.

"SKID-ROL" DOLLIES



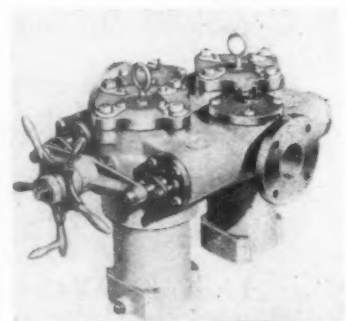
"SKID-ROL" dollies, obtainable in pairs, are announced by Tectman Industries, Inc., 828 North Broadway, Milwaukee, Wis. These simple dollies for shifting machines, tanks, boxes, steel blocks, dies, furnaces, heavy objects, etc. load from 10 to 12 tons. Each dolly is 18½" by 10½" x 4" high and is equipped with four all-steel rollers 3¾" in diameter, which are lubricated through Zerk fittings. Operation is simplejacking the machine or load to be moved 6 inches from floor, position a pair of dollies parallel with each other. Locate center of gravity of load centrally over pair of Skid-Rols, then remove jacks and load will be properly balanced. Load can now be rolled by manual power from place to place. Can be inverted and used as standing dolly for moving beams, etc.

**JOINS
CAST IRON
WITH
STEEL**

WELDING electrode that is said to be ideally suited for joining cast iron with steel is announced by the

Harnischfeger Corp., Milwaukee 14, Wis. Its name is Harcast. It is an all position mild steel electrode for welding and repairing cast iron. It fuses well with either mild or medium carbon steel. With a yield point of 50,000 psi, the deposited metal has ultimate tensile strength of 60,000 lbs., roughly double that of a good grade of cast iron. Harcast is usable with either ac or dc machines, and works well at low amperage. It assures a sound deep weld for any good grade of cast iron.

PIPELINE STRAINER



DUPLEX vertical chamber disc type pipeline strainer designed to assure continuous flow in pipelines, operated by a large handwheel that reverses valves simultaneously with minimum pressure drop, is announced by J. A. Zurn Mfg. Co., Erie, Pa. Capacity flow is assured at all positions of the operating handwheel. Unit is for protecting all types of pumps, traps, valves, regulators, injectors, control units and other primary equipment. It is made in cast bronze, steel, semisteel, and cast iron.

(Continued on page 170)

Buy the Bearings the Engineers Prefer

TIMKEN TAPERED ROLLER BEARINGS



As final Victory draws nearer in the months to come and the emphasis on war production gradually swings over to production for peace, more and more Timken Tapered Roller Bearings will become available to more and more manufacturers.

And they will be better bearings than ever before, for they will have profited from such tests as no bearings previously have been called upon to undergo.

Engineers who know their bearings always have recognized the sterling qualities of Timken Bearings, and from this recognition have sprung world-wide acceptance and preference.

Never did the trade-mark "TIMKEN" mean as much to the bearing user as it does today. Make sure it is stamped on every tapered roller bearing you buy.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

THE TIMKEN ROLLER BEARING
COMPANY, CANTON 6, OHIO



Brings You Better Morale — Increased Production

Greater Use of Plant Facilities

Why not **CHAMPION** *Such a Good Cause?*

CHAMPION Fluorescent and Incandescent Lamps are designed, manufactured and tested to be worthy of the responsibility for better industrial lighting. When you put CHAMPIONS to work in the right places* all over your plant you get these four Champion "Diamond points" of value:

- 1. Champion Quality**—guaranteed to equal or exceed Federal Specifications and backed by the engineering, production and quality control resources of one of the largest lamp producers in the industry, specializing in fine lamp manufacture for forty-five years.
- 2. Champion Service***—trained lighting experts in the field to give you competent and unbiased counsel on correct lighting for every part of your plant.
- 3. Champion Economy**—Champion Lamps are specially designed and distributed for industrial application. Their use helps to insure minimum lighting cost as well as lower lamp cost.
- 4. Champion Distribution**—carefully developed through an industrial distributor near your plant, selected for his ability to meet your needs promptly and efficiently.

CHAMPION LAMP WORKS

Lynn, Massachusetts

A DIVISION OF CONSOLIDATED ELECTRIC LAMP CO.



PRESSES FOR ASSEMBLY WORK

LINE of standardized hydraulic presses specifically designed for performing a wide range of assembly operations has been developed by Colonial Broach Co., Harper Station, Detroit 13, Mich.



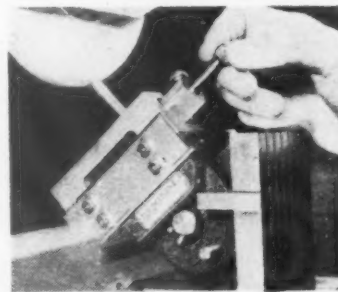
These assembly machines are available in capacity ratings of 15, 20, 35 and 50 tons. Motors are built-in and the direct acting hydraulic cylinder which operates the ram is built into the head of the press. Standard machines are available in several different table heights, 33" 27" and 21" on all presses. Presses are equipped with pressure control valve, hand control, and pressure gage for precision assembly operations. Ram speeds and maximum pressures are both adjustable.

ANNOUNCE "BLUE NOSE" TOOLS

LINE of "Blue Nose" tools which includes tool bits, cut-off blades, form tools, and others, is announced

by the Tru-Cut Tool Co., Detroit, Mich. Tools have a Rockwell of 63/65. Manufacturer states they are not brittle and work well on some heat-treated materials and die blocks. The tools are available in squares, flats and cut-off blades in wide range of standard sizes. Each tool bit is ready for use without additional grinding.

BEMISINE ANGLE DRESSER



DEVICE for dressing precise angles on surface grinder wheels is announced by Nichols-Morris Corp., 50 Church Street, New York 7, N. Y. A precision-fitted sliding member carrying a diamond dressing tool is mounted on an adjustable sine-angle plate which locates on the magnetic chuck directly below the grinding wheel, as shown in the illustration. The sine-bar principle is used in tilting the sine plate precisely to the desired angle. After the angle is determined, the diamond tool is brought in contact with the wheel and the slide is moved back and forth manually to generate a corresponding angle on the wheel. Sliding attachment may be quickly removed, when not in use, leaving a nice working surface for small parts. Descriptive bulletin mailed on request.

(Continued on page 172)

RECONVERT with NORTON

GRINDING WHEELS

WHERE YOU NEED THEM!



FACTORY STOCK

Thousands of square feet of stock rooms at the Worcester factory containing over 18,000 different abrasive items.



WAREHOUSE STOCKS

Well-stocked warehouses in five industrial centers—Chicago, Detroit, Cleveland, Pittsburgh and Philadelphia.



DISTRIBUTOR STOCKS

Over 200 distributors in 184 cities with stocks selected to meet local needs.

And in Types and Sizes for Every Grinding Job

RECONVERSION may bring you new grinding problems, but you can be sure of finding the right wheels to solve them in the Norton line—and stocked handy to you.

There are wheels in several varieties of Alundum abrasive (including the new record-breaking 57 Alundum) for grinding steels and steel alloys; wheels of Crystolon abrasive for cast iron, brass, and the light metals; and Norton diamond wheels for the carbides, glass, porcelain, and other unusual jobs. Bonds include B-E vitrified, resinoid, rubber, shellac, and silicate. And of course there's the patented Norton Controlled Structure process of manufacture.

Reconverting with Norton assures you the right wheel for each new grinding job and the engineering "know-how" to select them for you.

NORTON COMPANY, Worcester 6, Mass.
Behr-Manning, Troy, N. Y. is a Norton Division

NORTON ABRASIVES

Looping the Loops for **LONGER WEAR!**

It's the special "loop-finished" cloth in JOMAC GLOVES . . . a fabric which is lock-stitched to keep the thick cushion-pile in place and to give up to 7 times the wear of ordinary work-gloves.

Jomac Heat- and Flame-Resisting Gloves are guarding workers' hands on hot-handling jobs . . . increasing production . . . lowering costs. And they can be washed repeatedly, *kept clean!*



TRY JOMAC GLOVES—Test them in your own shop—on your *toughest jobs*. Check them for wear, for washability, for increased production. Write for full details. C. WALKER JONES CO., Philadelphia 38, Penna.

JOMAC'S LATEST CREATION—Safety *GAUNTLET - CUFFS*. Now, you simply replace worn glove without the expense of buying full gauntlet.

JOMAC

HEAT- AND FLAME-RESISTING GLOVES

PRESSURE SENSITIVE DEVICE

UTILIZING the principle that the electrical characteristics of a wire filament change with a physical strain, the Baldwin Locomotive Works' Southwark Divn. has developed a new device called



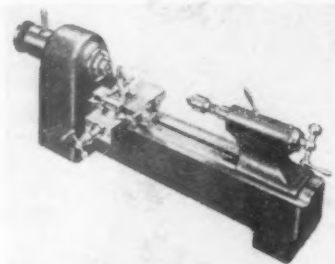
the SR-4 Pressure Sensitive Device. It is used to convert gas or liquid pressure to electrical energy for measuring, recording or controlling. Its extreme accuracy is $\frac{1}{4}$ of 1%. It is available in several ranges up to 0-to-20,000 psi. It is essentially an electronic device and results can be transmitted long distances whether for direct reading, recording or control. Transmission even by radio is feasible. Maker says it should have valuable applications in steel mills, refineries, hydro-electric plants, oil well operations, gas and oil pipe lines, filtration plants and other public utilities, chemical and processing plants.

HIGH TENSILE STEELS ELECTRODE

IMPROVED electrode for high tensile steels known as Fletweld 11-HT is announced by the Lincoln Electric

Co., Cleveland 1, Ohio. It is a shielded arc electrode for groove butt joints and welding horizontal or flat fillets. High tensile steels can be welded as easily and as fast with it as mild steels can be welded with the ordinary E-6020 type of electrode. It may be used with either alternating or direct current. It conforms to AWS specifications E-7020 and/or E-7030. It is available in $\frac{3}{16}$ " and $\frac{1}{4}$ " diameter sizes, 18" long.

JESELETS INSTRUMENT LATHE

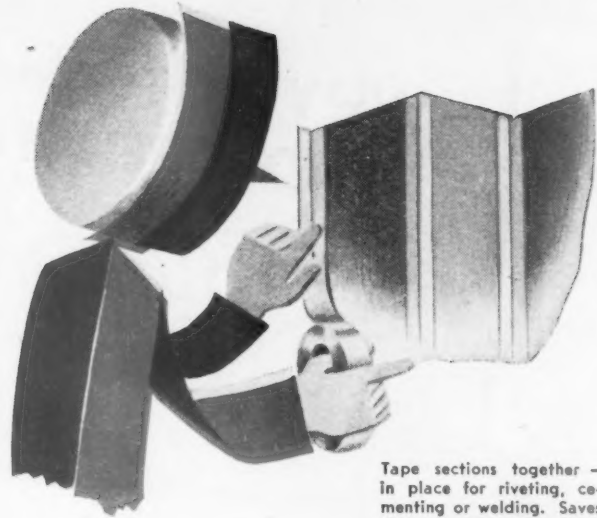


NEW Gilman Jeselers-Instrument lathe should be of special interest to manufacturers requiring extreme accuracy and high finishes, combined with quantity requirements in small parts fabrication. It is adaptable to production or toolroom use. It is fitted with 6-position, self-indexing tilted turret, plus the double-tool post, and lever operated cross slide. Swing over bed $5\frac{5}{8}$ "; over cross slide $2\frac{5}{8}$ "; maximum collet accommodation .315"; distance between centers 5". Spindle speeds from 600 to 5,000 rpm. Model 4-124, length over all, with lever-operated collet closer, 21".

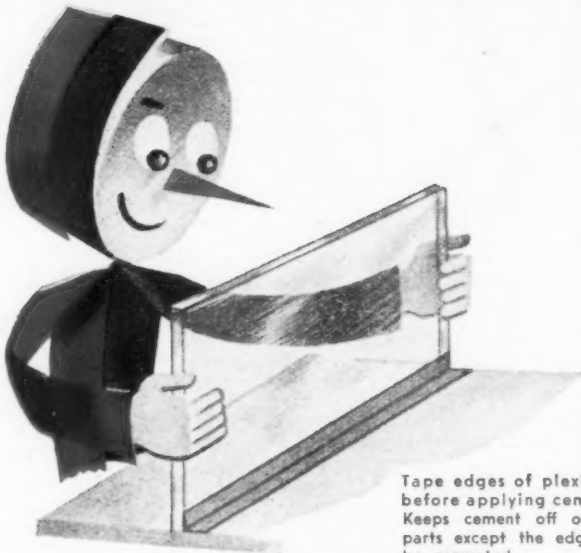
(Continued on page 176)



Tape up the ends of pipe—to keep it clean inside—free of moisture and corrosion. Simple, fast, efficient.



Tape sections together—in place for riveting, cementing or welding. Saves time—assures accuracy.



Tape edges of plexiglas before applying cement. Keeps cement off of all parts except the edge to be cemented.



Tape holds small parts in place during spraying operation—permits a better, faster paint job—with fewer rejects.

Jack of all Trades

• Yes, and master of hundreds of important industrial jobs. FILMONIZE Self-Sealing Tapes eliminate bottlenecks, save man-hours and money. FILMONIZE uses are already countless—yet we're called upon constantly to engineer special tapes for specific, out-of-the-ordinary industrial needs. And we'll gladly engineer special tapes for you. Just phone or write us your problem.

• Meantime, learn why so many big industries prefer FILMONIZE. Ask your local distributor to show you the entire line of Transparent, Colored and Multi-Colored Tapes; Printed, Identifying, Packaging and Specialty Tapes; Riveting Tapes; Splicing Tapes; Acetate Fibre and Metal Tapes. Widths of 1/2" to 18" throughout.

Filmonize
TRADE MARK REG
SELF-SEALING TAPES
INTERNATIONAL PLASTIC CORPORATION
Morristown New Jersey



WHY BOTH MANAGEMENT AND OPERATORS PREFER "Bumblebee" A.C. ARC WELDERS



We get better welds and more of them since we bought "Bumblebees"

- Production increases of 15% to 30% without sacrifice of quality are common.

- They consume 30% to 35% less power than D.C. welders — cut power costs.

- They provide leading kva which neutralize lagging kva caused by other equipment, relieving overloaded power lines and cutting demand charges 10% to 30%.

- Because of freedom from arc blow, deposition rates can be speeded up by increasing the amperage. This often makes it possible to use larger, longer electrodes and cut down stub end losses.

- Absence of moving parts, tough, he-man construction and top-notch insulation assure dependable, trouble-free operation — eliminate shutdowns for repairs and replacements.



It's easy to do a swell welding job with a "Bumblebee" at the other end of the cable.

- There's almost no "arc blow". You can work faster in any position and you're sure of good, sound welds every time.

- It's easy to produce sound, uniform welds in the corners and tight spots—there's less chipping out of welds.

- It's often possible to use longer and larger electrodes; there are fewer stops to put new electrodes in the holder.

- It's a simple matter to adjust the current for different kinds of work — just turn the crank.

- The current setting is always plainly visible on the big easy-to-read indicator.

- They're dependable — don't require oiling or other attention. An operator can concentrate on welding.

• These are a few of the important advantages which are making "Bumblebee" welders favorites in plants everywhere. Others are described in the "Bumblebee" Catalog. Ask your nearest Airco office for a copy or write Dept. PR, Air Reduction, General Offices: 60 East 42nd Street, New York 17, N. Y. In Texas, Magnolia Airco Gas Products Co., General Offices: Houston 1, Texas.

AIR REDUCTION

OFFICES IN ALL PRINCIPAL CITIES



WILSON
"Bumblebee"
A.C. ARC WELDERS
Registered U. S. Patent Office
WITH THE PENETRATING, STINGING ARC

A COMPLETE LINE OF A.C., D.C. AND GAS-ENGINE DRIVEN UNITS



THE PACKAGE OF THE **FUTURE**

THE PALLETIZED LOAD A WAR-BORN DEVELOPMENT

In Postwar planning many large shippers will be turning to the Palletized Load, because of the experience gained in this war.

Designing shipping containers to fit a freight car and NOT to hold a given amount of goods was a critical problem which was solved militarily.

There is NO reason why industries cannot adopt this procedure when the contents "Fit the

Container" — which Fits the Pallet — which Fits the Boxcar. Prior to the Palletized method, it took 14 men a half a day

to break material out of stowage and load a car, handling each container separately. Now one person on a fork truck can load the same car in less than 2 hours. For large users — booklet on the Palletized Load, illustrated with official photographs.



SAVE



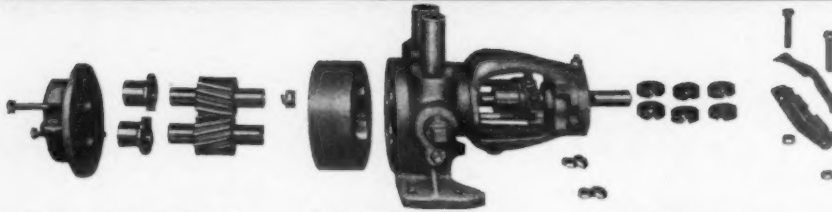
WASTE

PAPER

ROBERT GAIR COMPANY, INC., NEW YORK • GAIR COMPANY CANADA LIMITED, TORONTO

Folding Cartons • Box Boards • Fibre and Corrugated Shipping Containers

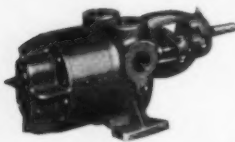
HOW ROPER PUMPS CAN BE SERVICED WITHOUT DISTURBING PIPE CONNECTIONS OR MOUNTING



1 Two cap screws, threaded into jack screw holes, pull face plate. Front flanged bearings and gears slip out easily. Flexible slider coupling is removed thru hole in opposite bearing.

2 The gasket-sealed gear case separates from back plate. Back flanged bearings are easy to get out. The back plate, pipe connections, mounting, and power units, remain intact.

3 Stuffing box can be repacked quickly with split-ring packing by removing 2-piece cap. Split-gland slides forward on shaft to allow clearance, serves as tamper, and is also removable.



Send for Catalog and Booklet "How To Solve Pumping Problems" No. 11-37

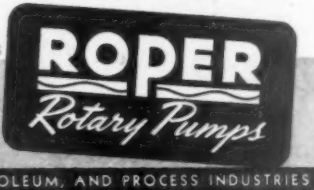
ROPER DESIGN CUTS DOWN-TIME

As illustrated above, Roper Pumps are designed for easy accessibility to working parts. It's not necessary to disturb piping, power unit, or pump mounting to inspect or replace gears, case, bearings or packing.

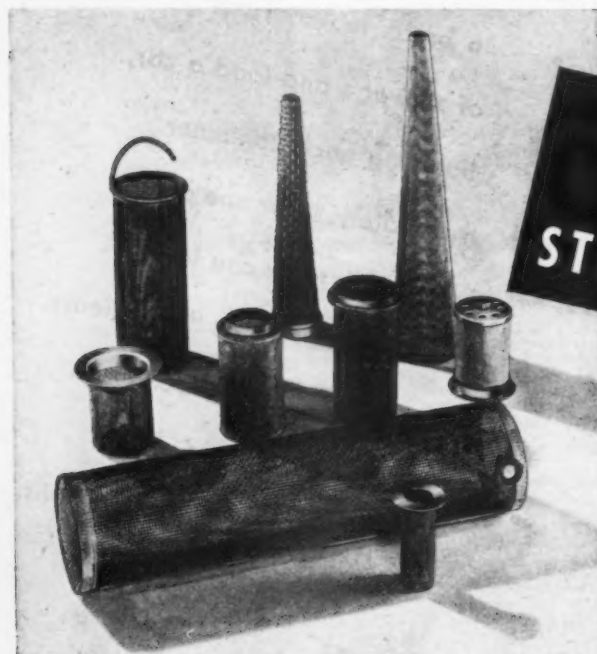
When an old unit needs attention, or a destructive foreign element causes trouble, easy accessibility to internal parts cuts down-time . . . helps speed up the service job. Interchangeable parts and packings are available promptly.

GEO. D. ROPER CORP., ROCKFORD, ILL.

PUMPS ESPECIALLY ENGINEERED TO FIT YOUR REQUIREMENTS



BUILDERS OF PUMPS FOR MANUFACTURING, MARINE, PETROLEUM, AND PROCESS INDUSTRIES



JELLIFF FUEL STRAINERS

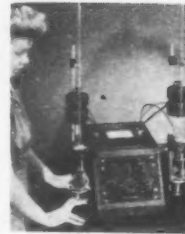
OTHER JELLIFF PRODUCTS

WIRE CLOTH
WIRE FILTERS
RESISTANCE WIRE
LEKTROMESH
DIPPING BASKETS

Jelliff has all the facilities for making fuel strainers. Wire drawing, weaving, and fabricating all in one plant — each step carefully watched by an inspector trained for that particular job. Rigid adherence to specifications and tolerances is guaranteed; AND SHIPPING SCHEDULES ARE MAINTAINED.

The C. O. JELLIFF MFG. CORP.
22 PEQUOT AVENUE • SOUTHPORT, CONN.

TITROMETER



TITROMETER which accurately determines the free and combined acidity of material in either aqueous or non-aqueous highly colored or opaque solutions, is offered by Precision Scientific Co., 1750

No. Springfield Ave., Chicago 47, Ill. Instrument was originated by the Shell Development Laboratories primarily for determining the acidity of highly complex mixtures of lubricating oils. It has been found applicable to determine the acidity of used lubricants, detergents, fats, turbine oils, oil additives, motor oil sludges, asphalts, waxes, fats, etc. Potentiometer method is reliable and reproducible, and the titration media is capable of dispersing or dissolving sufficient quantities of the water in soluble materials under test. Operation is similar to that of the pH determination. Titrometer is portable. No batteries or transformers are required. Titrometer is equipped with meter scales and potentiometer circuits which give a range of -1.65 to plus 1.65 volts readable to 0.5 millivolts.

V-BELT
DRIVE
BENCH
LATHE

LATEST addition to the South Bend Lathe line is a V-Belt Drive 9" precision bench lathe. It features 4-step V-belt cone pulleys which, with the back gears, provide either 8 or 16 spindle speeds ranging from 46 to 1176 rpm. It is made with either quick-change gear or plain change gear equipment for wide range of thread cutting and power longitudinal feeds. Two models incorporate power cross-feeds. Catalog 9-G describes model. South Bend Lathe Works, 309 E. Madison St., South Bend, Ind.

NEW "Y" STRAINER

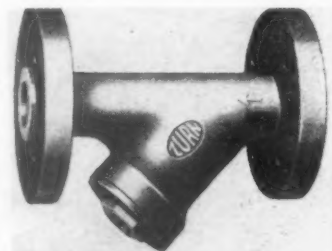


ILLUSTRATION shows "Y" strainer designed with a snug fitting strainer sleeve unit to assure trouble free operation; sleeve is removable. Unit can be installed in almost any position in a pipe line. Basket may be magnetized for intercepting metal particles. The "Y" strainer is made in cast bronze, steel, semi-steel or cast iron. Wide range of sizes is available for flanged, welded or threaded connections. J. A. Zurn Mfg. Co., Erie, Pa.

(Continued on page 178)

KATHANODE BATTERIES

*Cut Charging
Costs in...*

ELECTRIC TRUCK OPERATION



Charging station for industrial truck batteries in a large warehouse

GOULD

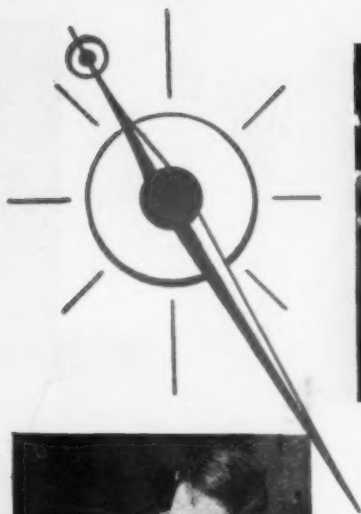
POONEER OF GLASSKLAD CONSTRUCTION

GOULD STORAGE BATTERY CORPORATION, Depew, N. Y.
Factories: Atlanta • Chicago • Dallas • Depew • Leavenworth • Los Angeles
North Bergen • Rock Island • St. Paul • Salem • Sioux City • Zanesville

Kathanode's high charging efficiency is due to its special negative plate. This has a negative active material of unusually high density. It is less inclined to permanent sulfation and therefore requires less current in the conversion from sponge lead to lead sulphate.

In battery-powered electric trucks this more efficient utilization of charged current means lower charging costs and better operation of your materials handling equipment.

Battery power is best for materials handling, and Kathanode is the best battery power. Write Dept. 211 for Catalog 100 on Gould Kathanode Glassklad Batteries for Industrial Truck and Tractor Service.



*Wherever Dial Indicators
Are Indicated
Make 'Em*

STARRETT

These pictures of Starrett Dial Indicators and "Last Word" Indicators on critical production jobs are better than a "thousand words" as evidence that Starrett accuracy and durability applies to Starrett Indicator Gages as well as to all other Starrett Precision Tools.

Starrett Dial Indicators cover every range and requirement of machine, jig and fixture application and of inspection work. Easy to read, sturdily constructed for lasting accuracy, your workers and inspectors welcome any Indicator that has the Starrett name on the dial.

Let us mail you Starrett Dial Indicator Catalog "P".

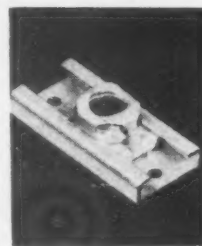
THE L. S. STARRETT CO., ATHOL, MASSACHUSETTS, U. S. A.

World's Greatest Toolmakers

STARRETT

PRECISION TOOLS • DIAL INDICATORS • GROUND FLAT STOCK
HACKSAWS • METAL CUTTING BANDSAWS • STEEL TAPES

FLOATING ANCHOR NUT



NEW type of floating anchor nut known as "Click" flating anchor nut, which employs replaceable standard nuts, is announced by Kaynar Manufacturing Co., 820 E. 16th St., Los Angeles, Calif. It is available in sizes from #6-32 to $\frac{3}{8}$ "-24. Unit consists of base, retainer, standard nut, and patented steel spring clip, all assembled. Damaged nuts are easily replaced without special tools and without drilling out rivets. Nut floats in all directions, insuring self-alignment of nuts with the bolt axis. Base is of high strength ST aluminum and has high resistance to torque and thrust; flanges will not bend and nuts cannot be pushed out. It can be used with high temperature nuts—up to 650 deg. F.

INSIDE REFRACTORY COATING MATERIAL

ZIRCOAT-M is a zirconium silicate base refractory developed by Basic Refractories, Inc., Hanna Building, Cleveland, Ohio. Upon application with a spray gun it sets up rapidly to form a hard dense working surface that will withstand high furnace operating temperatures and unusual furnace conditions, it is said. It is a fine grained material shipped dry, and is mixed with water for spraying, and is used as a protective coating on silicon carbide, fireclay, sillimanite, mullite, silica and other acid type refractories, and in the industrial boiler field in protecting brickwork that is exposed to severe flame impingement and corrosive action of clinker or fly ash.

SMALL PNEUMATIC HAMMER



SMALL, powerful pneumatic hammer, delivering some 13,000 blows per minute and operating on less than 2 cu. ft. of air at 80 to 100 psi, is announced by Superior Manufacturing Co., Public Square Building, Cleveland 13, Ohio. Hammer is named the Bantam Bully. It weighs less than two pounds. Tools for the hammer, of which wide variety is available, are loaded in quick acting ball and channel locking chuck. Tool has but one moving part. Travel of the hammer piston is approximately $\frac{3}{4}$ ". Tool can be used for cold chiseling, peening, light riveting, routing, caulking, etc. Printed matter available.



WAREHOUSES IN NINE KEY CITIES

Serve you promptly!

WE HAVE nine large warehouses* located in key manufacturing areas from which deliveries can be made quickly to any point. During war years these warehouses have done a good job of living up to their famous reputation for fast service. Today our stocks are larger — there is a wide variety of steel available for immediate shipment, including all standard grades and sizes of U·S·S Stainless Steel and a complete line of Carbon Steel Products. When you need steel

in a hurry, phone, write or wire our nearest warehouse. We will continue to exert our best efforts in making deliveries to meet your requirements. Our service has helped many customers avoid serious delays in production. Your orders and inquiries receive prompt, careful attention.

*Our Boston warehouse has been taken over by the Navy for storage of vital supplies. But we maintain our Boston Sales Office to expedite service to our New England customers from all our other warehouses.

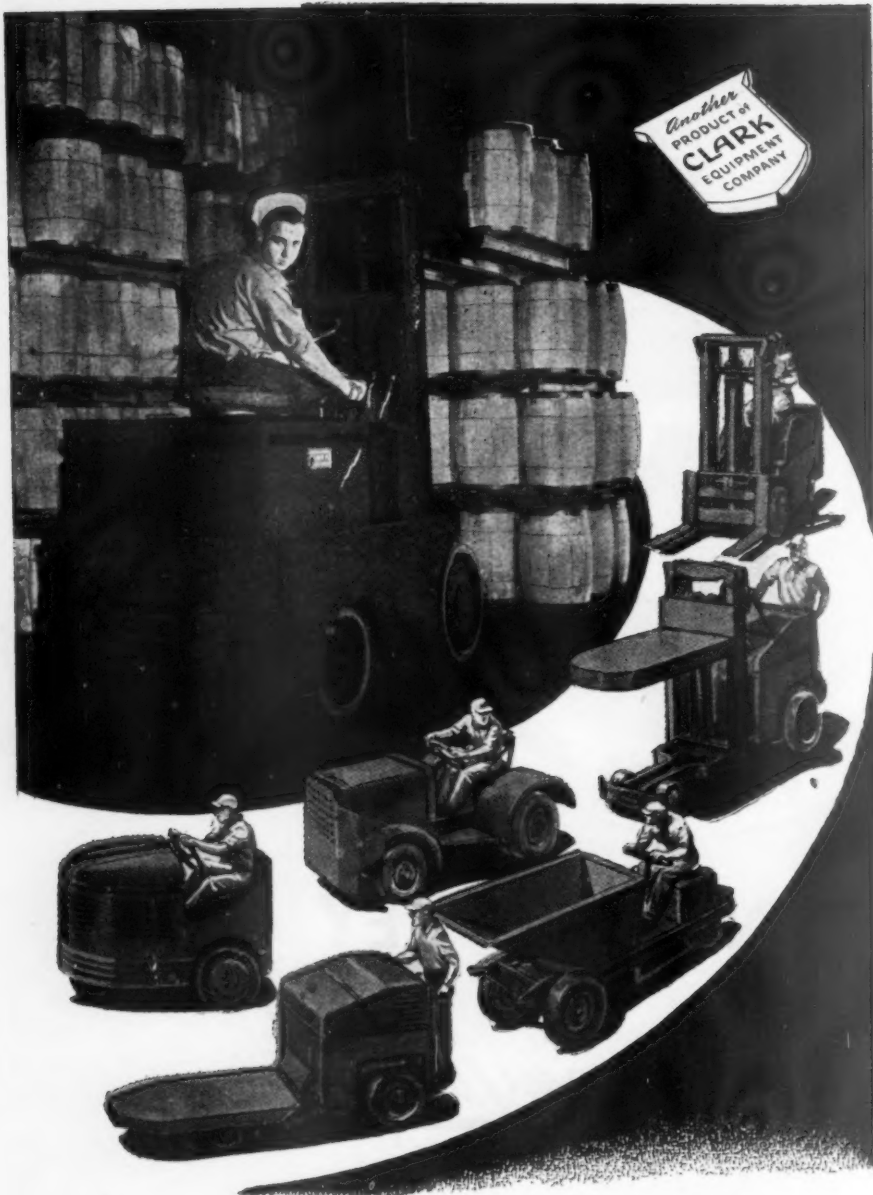
UNITED STATES STEEL SUPPLY COMPANY

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P. O. Box MM—BRUNSWICK 2000
BALTIMORE (3) Bush & Wicomico Sts.,
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BOSTON (34) 176 Lincoln St., Allston, P. O. Box 42
STADIUM 9400
CLEVELAND (14) 1394 E. 39th St., HENDERSON 5750
MILWAUKEE (1) 4027 West Scott St.,
P. O. Box 2045—MITCHELL 7500

NEWARK (1), N. J. Foot of Bessemer St.,
P. O. Box 479—BIGELOW 3-5920
RECTOR 2-6560, BERGEN 3-1614
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CEDAR 7780
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MAIN 5235
TWIN CITY 2545 University Ave., St. Paul (4), Minn.
NESTOR 2821

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United States Steel presents
The Theatre Guild on the Air. American Broadcasting Company coast-to-coast network. Consult your newspaper for time and station.

UNITED STATES STEEL



The CLARK FLEET ... is revolutionizing material handling

There's a machine for every need — Clark team of Fork Trucks and Industrial Tractors. Each is a fast, maneuverable, hard worker designed specifically to meet the practical working needs of a particular Material Handling job.

For sound expert counsel on your Material Handling needs, talk to a Clark Field Engineer — NOW.

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TRUCTRACTOR, BATTLE CREEK, MICHIGAN

*Products of CLARK • TRANSMISSIONS • ELECTRIC STEEL CASTINGS
AXLES FOR TRUCKS AND BUSES • AXLE HOUSINGS • BLIND RIVETS
INDUSTRIAL TRUCKS AND TRACTORS • HIGH-SPEED DRILLS AND REAMERS
METAL SPOKE WHEELS • GEARS AND FORGINGS • RAILWAY TRUCKS*

THERMIT WELDING OF SHIP FRAMES PORTRAYED IN MOTION PICTURE

Fabrication of stern frames of cargo ships by Thermit welding is graphically portrayed in a 16 mm. sound and color motion picture made for the Metal and Thermit Corporation. The 20-minute film completely visualizes the Thermit process by which thousands of stern frames have been welded during the war without failure of a single weld being reported. Prints are available without charge for showing to local sections of the American Welding Society, the A. S. M. E. and other organizations, as well as interested companies, by request to the Metal and Thermit Corporation, 120 Broadway, New York, New York.

1 1 1

"DIXIE" WALKER PRESENTED WITH MAGNESIUM BAT

Baseball bat made of magnesium was recently presented to "Dixie" Walker, star hitter of the Brooklyn Dodgers, by



"Dixie" Walker examines
magnesium bat

the Magnesium Association, at Ebbets Field, Brooklyn. With permission from Manager Chapman of the Phillies, who were playing the Dodgers, "Dixie" actually used the bat in a regulation league game, and almost knocked one ball over the left field fence. He said that the bat does not sting and hits a true ball. He has broken 36 bats this season. The magnesium bat was manufactured by White Metal Rolling & Smelting Corporation of Brooklyn.

1 1 1

NEW SYNTHETIC RUBBER FINISH

Introduction of a new wrinkle finish employing rubber latices, is announced by New Wrinkle, Inc., of Dayton, Ohio. The new coating can be dried after application at temperatures as low as 130 deg. F. The synthetic rubber "wrinkle" finish is said to be considerably more flexible than previous formulations, ranging to the extreme in flexibility and pliability. Formulation is by straight mixing of components and requires no cooking. A large variety of surface patterns is available. The development is not limited to any single type of synthetic rubber. Interesting results have been obtained with copolymers of butadiene and styrene, and of butadiene and acrylonitrile. Polyvinyl chloride and neoprene

(Continued on page 184)

WHILE

your new product is still...

a gleam in your eye

THEN

discuss the springs you'll need with Accurate

it's a good way to save time, trouble and money

• Often, when we know all the influencing factors—when we know how and why and where you are going to use springs—we can make helpful suggestions. These suggestions may improve your product, shorten assembly time, increase spring efficiency and perhaps cut spring costs.

We don't say we can work miracles. But... the efficient use and application of spring power is our business just as well as is their manufacture. In planning your future products, ask us about the springs *before* you start manufacturing—in confidence, of course. It costs you nothing... and may pay you well.

ACCURATE SPRING MANUFACTURING CO.

3825 West Lake Street

Chicago 24, Illinois



**SPRINGS
WIRE FORMS
STAMPINGS**



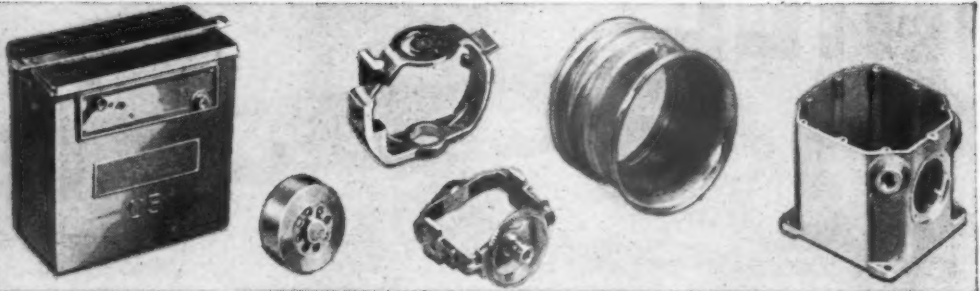
• Send for your copy of the new Accurate Spring Handbook. It's full of data and formulae which you will find useful. No obligation.



8 ways

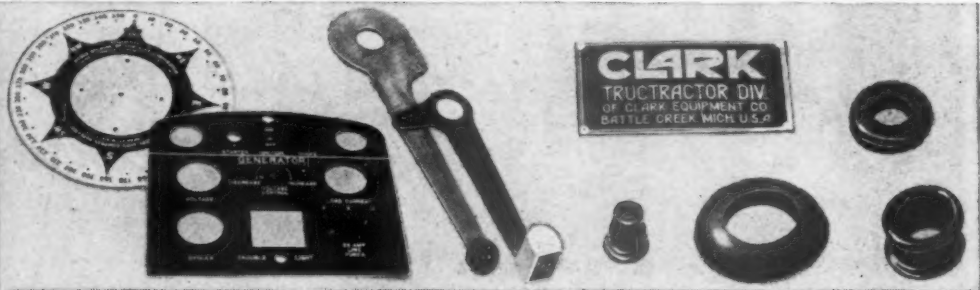
Die Castings

Manufacturing facilities are modern and exceptionally complete. They include trimming, precision machining, plating, painting, cranking and anodizing.



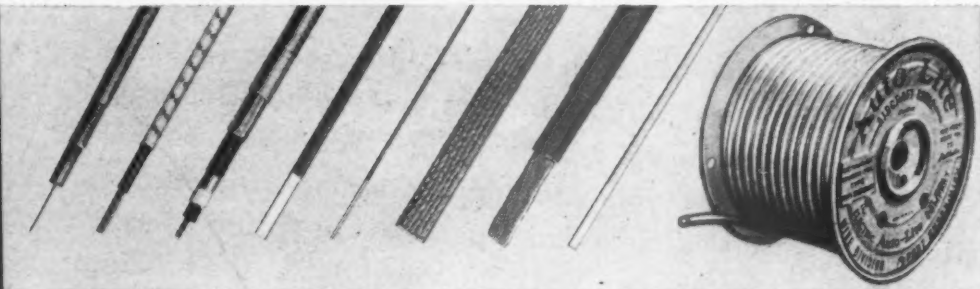
Plastics

All-plastic products, metals and plastic-metal combinations with various types of ornamentation are produced entirely under one roof at the Bay Division.



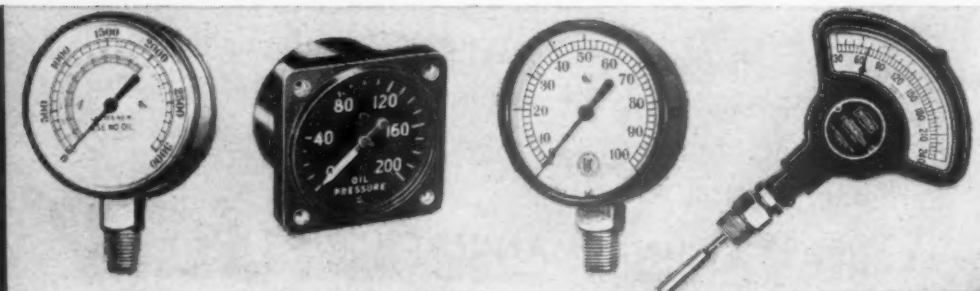
Wire and Cable

Wire and cable is available in a full range of sizes, shapes, materials and insulations including heat-resisting Vega Chromoxide enamel and other special types.



Instruments

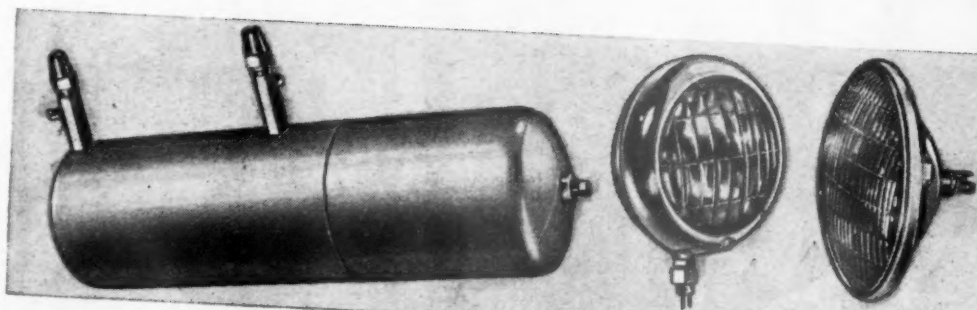
A wide range of pressure gauges, tachometers, thermometers and speedometers, etc., is available from Auto-Lite for industrial, aviation and automotive use.



AUTO-LITE

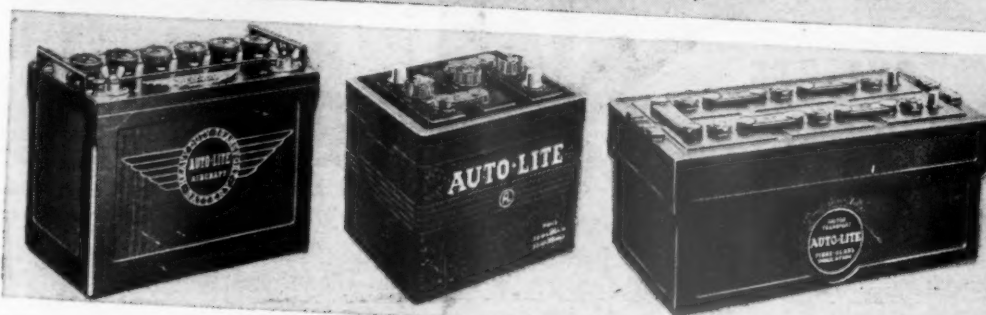
AUTO-LITE

can serve you



Deep Drawing

A fine example of Auto-Lite's unusual ability to draw steel is this refrigeration receiver. Auto-Lite is also a leading producer of automotive lighting.



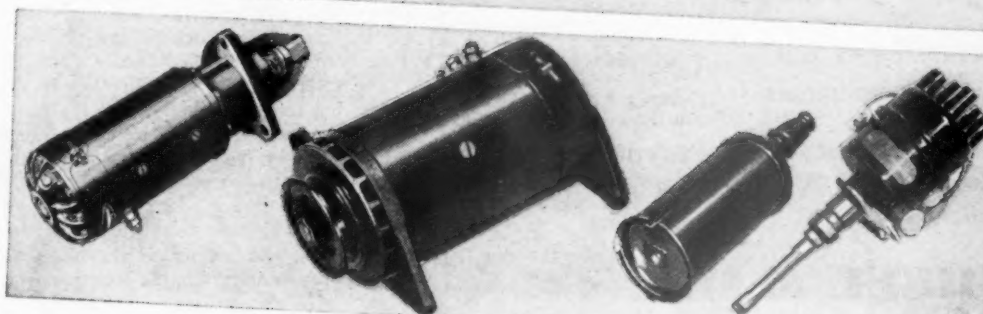
Batteries

Auto-Lite batteries are built in every type and size to fit various models of passenger cars, trucks, buses, stationary engines as well as aircraft.



Spark Plugs

Auto-Lite spark plugs are designed for use in automobiles, trucks, buses and aircraft and are engineered to work in harmony with the complete ignition system.

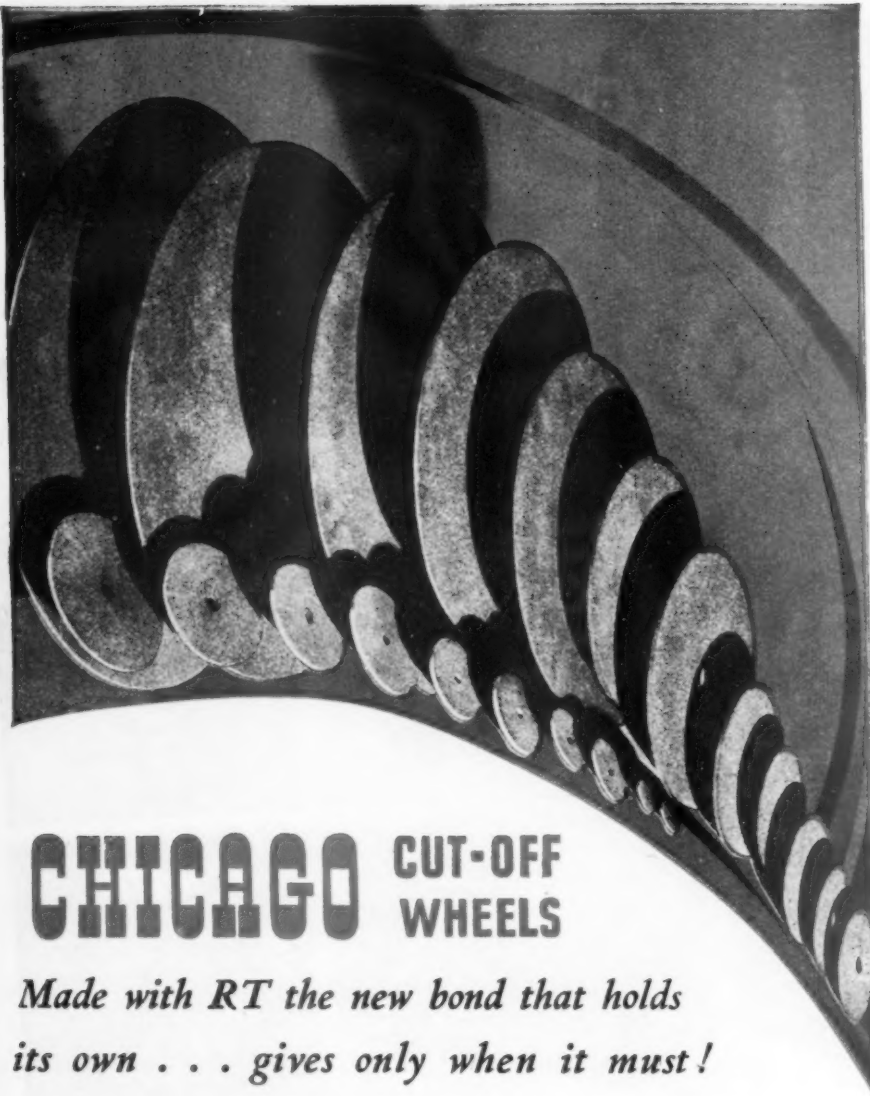


Electrical Parts

For thirty-three years Auto-Lite has been producing precision-built starters, generators, distributors and coils which are specified by many leading manufacturers.

Tune in the Auto-Lite Radio Show Starring Dick Haymes — Saturdays 8:00 P. M. — E. T. on C B S

The products shown here are applicable to many industries. Address your inquiries about any of them to:
THE ELECTRIC AUTO-LITE COMPANY, Toledo 1, Ohio . . . New Center Bldg., Detroit 2, Michigan—
 Tower Petroleum Bldg., Dallas 1, Texas—Chrysler Bldg., New York 17, N. Y.—1016-17 Halliburton Bldg., Los
 Angeles 14, Calif.—600 S. Michigan Ave., Chicago 5, Illinois—12 Richmond St., E., Toronto 1, Ontario—Canada.



CHICAGO CUT-OFF WHEELS

Made with RT the new bond that holds its own . . . gives only when it must!

From the swift era of war production comes another modern miracle, the cut-off wheel — man power and man hour saver — for the fastest, smoothest method of cutting tubing, wire, steel and brass sheets, glass, porcelain, Stellite, tungsten, plastics, laminates and other hard-to-slice materials.

When RT, the special formula bond was developed, it put the cool-running CHICAGOS 'way out in front in real performance records.

Available in rubber or resinoid — a full range of styles and sizes. 3 bond types — for every operation.

WANT TO TRY ONE? Tell us what you have to cut, grinder you use and size wheel you'd like. We'll send a test wheel promptly. Write for Circular.

CHICAGO WHEEL & MFG. CO.

Originators of the famous Chicago Soft Rubber Polishing Wheels

1101 W. Monroe St.

Chicago 7, Ill.
PG-11

☐ Send Circular

☐ Send Test Wheel

Size

To Cut

Name

Address

(Continued from page 180)

have also been used. Finishes range from a fine suede to heavy embossed patterns. The finishes may be applied to metal, wood, glass, porcelain, chinaware, paper, fabrics and leather. Application may be by spraying, rolling, spreading or dipping. Drying may be either in gas or infrared ovens.

1 1 1

WIRE CORDS FEATURE NEW HEAVY DUTY TIRE

One of the outstanding new developments in tires—a wire-cord heavy duty tire that is practically blowout proof—was announced today by L. R. Jackson Executive Vice-President of The Firestone Tire and Rubber Company, Akron, Ohio.



L. R. Jackson, executive vice-president of Firestone says the wire-corded tires are practically blowout proof.

The tire now in the final experimental stage has withstood severe field and laboratory tests. It has been proved in various kinds of actual heavy duty service and is designed to give exceptionally long mileage in such fields as logging, strip mining of coal and ore and similar activities.

Fine metal wire cord with a very high tensile strength is firmly bonded with rubber to provide the foundation of the new tire. Every cord in every ply is five times as strong as the strongest cord heretofore used in conventional tires. Because of the strength of the metal, fewer plies are required, and the walls of the tire consequently are thinner. This contributes toward cooler running.

The safety secret of the tire lies in the strong but thin construction and the heat-conducting nature of the wire cords. Heat is carried away from the hot spots within the tire and dissipated by the metal.

About 25 per cent more tread mileage is given by the new tire because of the cool running and because of the fact that since there is no stretch, the tread surface is not put under tension.

1 1 1

HERCULES TECHNICAL BOOKLET ON CELLULOSE ACETATE

A revised edition of the technical reference booklet on cellulose acetate has just been issued by Hercules Powder

(Continued on page 188)

To Aid You in Selecting Fuses

GENERAL ELECTRIC Offers a COMPREHENSIVE FUSE CATALOG



WHETHER you need enclosed cartridge fuses with 600-ampere capacity or 15-ampere plug fuses, you'll find them all listed and described in this catalog. Here is a complete presentation of the G-E line — and it is a large line including non-renewable enclosed fuses, renewable enclosed fuses, Silvend enclosed fuses with silver-plated contacts and Pyrex* plug fuses. The construction of each fuse is explained. Fuse parts are illustrated.

In addition, the catalog contains descriptions of how a fuse operates, of time-current characteristics, of high interrupting capacity and of tests made on fuses. There is also a section on the maintenance and care of fuses. You'll find this catalog full of fuse information — all helpful in the selection of fuses. You'll find fuses of the correct type and proper rating for every purpose too. These fuses are all high quality and are thoroughly tested and carefully rated.

*Reg. U.S. Pat. Off.

G-E CONDUITS AND BUILDING WIRES

There are G-E conduits and building wires for every purpose: G-E White and G-E Black rigid conduits, EMT, flexible metal conduit, Fibreduct and various building wires including Type T and Type TW thermo-plastic insulated, small diameter building wire.



FOR A FUSE CATALOG or for further information on G-E conduits or building wire see the nearest G-E Merchandise Distributor or MAIL THE COUPON

General Electric Co.
Section CDW-11510-77
Appliance and Merchandise Dept
Bridgeport, Conn.

Sirs: Please send me
☐ the new G-E Fuse Catalog
☐ information on G-E conduits and wire

Name.....

Address.....

City.....State.....

GENERAL  ELECTRIC

Thread-forming screws for speed



Machine screws and Tapping screws are completely described in these two new file size folders, with list prices and valuable engineering information. Write for your copies.

...IN ASSEMBLIES...A SMART WAY TO MEET PRODUCTION SCHEDULES FOR YOUR POST-WAR PRODUCTS

An improvement *in methods* is the first answer to look for in solving the problem of stepped-up demands of production, whether in war or peace times. War production would have been immeasurably slowed down had it not been that the *thread-forming screw* eliminated the need for tapping many millions of holes in material that had to be joined together in a hurry. Wherever a thread-forming screw could be used in the assembly or fabrication of war materiel, time was saved when time was most precious. Saving of time by American methods was one of the prime factors in winning this war—an essential ingredient of quick pick-up of peacetime production.

Lamson makes thread-forming and sheet metal screws in tremendous quantities. Three standard types are produced for metal and plastic applications. Types "a", "c" and "b" are made with slotted, Phillips or Clutch heads. Type "c" (thread-forming) screws have American National Standard coarse thread.

Because of the need for more detailed information on thread-forming and sheet metal screws, a new Lamson folder showing detailed lists, stock sizes and essential information is ready for you. Just use the coupon at the right to get your copy. Samples of Lamson

thread-forming and sheet metal screws will be sent you on request.

THE LAMSON & SESSIONS COMPANY, General Offices: Cleveland 2, O.
Plants at Cleveland and Kent, Ohio; Chicago and Birmingham



"BOLTS, NUTS & SCREWS"—1944 REVISION. Cloth bound. Limited edition, 180 pages of technical, practical information. Sent prepaid for \$1.00—cash or check must accompany your order.

"BOLTS ARE IMPORTANT!"—24-page booklet of currently useful information for buyers of headed and threaded products, and describing Lamson & Sessions' specialty fastenings which have wide industrial applications—now, and in the post-war period. Sent gratis.

"THE LAMSON BLUE BOOK"—is our standard Catalog of standard products excepting our Aircraft products. Sent gratis.

"SIMPLIFIED STOCK LIST"—Of bolts, nuts and screws, conforming to latest revisions of the Office of Price Administration, and of great value in showing you in what ratio quantities of various standard products are kept in stock for deliveries, by your jobbers and in our own (and other bolt manufacturers') warehouse stocks. Sent gratis.

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☐ Bolts are Important! ☐ Simplified Stock Sizes

Send information on ☐ Cap Screws and Set Screws ☐ Cotters
☐ Bolts ☐ Machine Screws ☐ Lamson Lock Nuts
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Employed by (Name of Company) _____

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City and State _____ No. 1967—Copyright 1945—The Lamson & Sessions Co.

LAMSON & SESSIONS

BOLTS • NUTS • COTTERS • CAP SCREWS • SPECIALS

Your Jobber Stocks the Lamson Line

PROTECTING fixtures since plumbing came indoors...



The manufacture of plumbing supplies has greatly developed since the time when President Millard Eillmore installed the first full-size, iron bath-tub in the White House.

Serving the plumbing supplies industry since its earliest beginning and along every step of its great advance was H-V-W-M, manufacturers of a complete line of electroplating and polishing equipment and supplies. Many problems of protection by plating stood as obstacles to the industry's

development, and Hanson-Van Winkle-Munning is proud of having aided in solving them.

The knowledge and the experience of serving all industries of all kinds for 125 years is at your service.

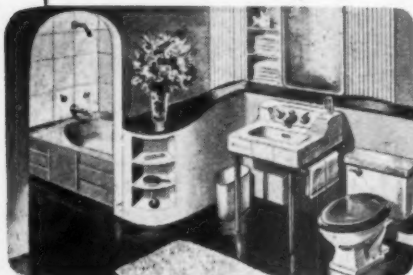
Listed below are some of the highly authoritative H-V-W-M technical papers and bulletins. Select the literature that has a bearing on your particular problem and write for it by number, without obligation.

HANSON-VAN WINKLE-MUNNING CO.

MATAWAN, NEW JERSEY

Plants: Matawan, New Jersey • Anderson, Indiana

Sales Offices: Anderson • Chicago • Cleveland • Detroit • Elkhart • Matawan
Milwaukee • New Haven • New York • Philadelphia • Pittsburgh • Syracuse
Springfield (Mass.)



Anodes and Plating
Chemicals No. AC-105
Barrels (Burnishing) No. BB-103
Barrels (Plating) No. PB-106
Baskets (Dipping) No. D-105
Brushes No. BB-102
Buffs and Compositions No. BC-104
Centrifugal Dryers No. CD-101
Cleaners No. C-105
Conveyors (Semi-Automatic) No. SA-101

Conveyors (Full Automatic) No. FA-101
Electroplaters No. EM-101
Microscopes No. G-101
Generators No. GR-103
Rectifiers (Tank) No. TR-A-526
Tanks No. T-104
Wheels (Polishing) Glue and Abrasives No. W-101
Wrap Wax No. WR-102

438



Coil Spring Says:

"I've got an eye to the future an' I'm ready to spring!"

**EXTENSION • TORSION
FLATS • COMPRESSION
WIRE FORMS**

Your postwar spring problems may be many and complex. But our capacity for keeping up with new developments of metallurgy and engineering has proved its value time after time. So, you can depend on us for "what's new and what's next" in springs. We're ready for your call.

THE U.S. STEEL WIRE SPRING CO.

7800 FINNEY AVE. • MICHIGAN 6318 • CLEVELAND

(Continued from page 184)

Company, Wilmington, Del. This brings up-to-date the company's fundamental literature on the three major bases for cellulosic plastics. Revisions of the ethyl cellulose and nitrocellulose booklets were issued several months ago and are still available.

Included in the plastics material of the revised cellulose acetate booklet is a new section on the use of cellulose acetate in thermoplastic laminates. The improved dimensional stability and greater water resistance of plastics made from high acetyl acetate is also discussed in the booklet. The booklet suggests many other uses of cellulose acetate in rayon, film and foil, and specialty lacquers.

▲ ▲ ▲

FLOTOFOAM INSULANT WEIGHS AS LITTLE AS ¾ LB. PER CUBIC FOOT

New buoyant material, seven times lighter than cork, made it possible in some of the Pacific invasions for heavily armored tanks to be unloaded a mile at sea and go ashore under their own power with guns firing.

A plastic foam, developed and produced by United States Rubber Company in cooperation with Army ordnance, the material was used to fill large steel pontoons which carried tanks over coral reefs to shore. It even kept pontoons and tanks from sinking when punctured by gunfire.

For some of the Pacific island landings, tanks were unloaded from landing barges a mile or more from shore and went in with turrets and main guns above water, ready for action. The tank's engines drove the tracks which acted as paddle wheels to take tanks to shore.

Peace uses for this new material, according to United States Rubber Company officials, include insulation for homes, automobiles, trains and airplanes and buoyancy units for life preservers, floats and pleasure craft. Known as flotofoam, it weighs less than a pound and a half a cubic foot and can be made to weigh as little as three quarters of a pound a cubic foot.

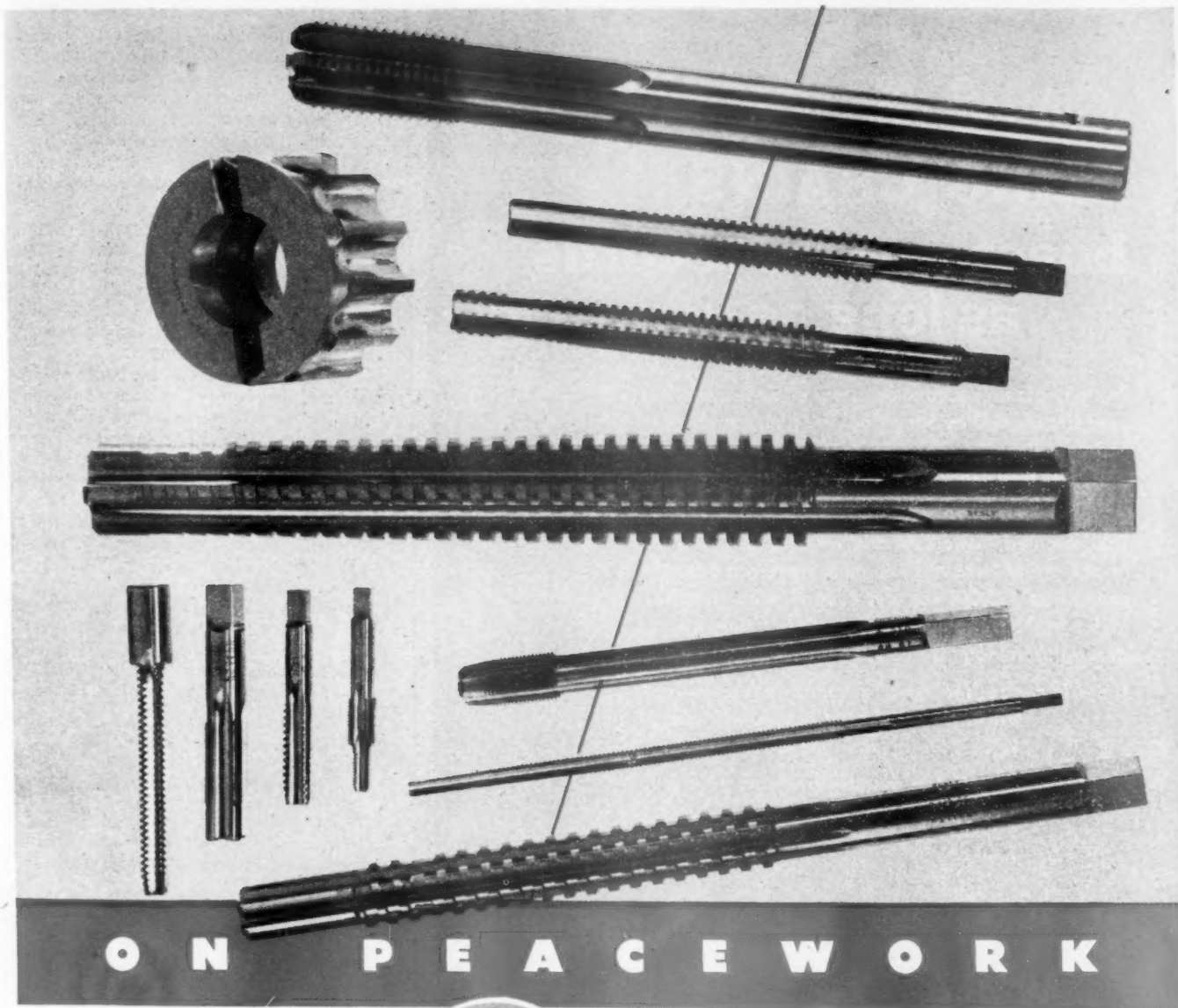
▲ ▲ ▲

REPORTS AVAILABLE ON GERMAN SYNTHETIC RUBBER TECHNIQUES

Techniques used by the Germans in the production of medical, surgical and sundry rubber goods and synthetic insulation for wire and cable are described in two new reports prepared by members of the technical mission that recently inspected key rubber and rubber products plants in Germany, the War Production Board reports.

These reports supplement two earlier ones compiled by the rubber mission on the production and performance of German synthetic tires and on synthetic rubber mechanical goods. All four of the reports have been issued by WPB's Rubber Bureau and the Office of Rubber Re-

(Continued on page 190)



Helpful Facts FOR TAP USERS

• This valuable booklet contains vital information on taps and tapping procedures. Tables list various classes of fits. Tap drill sizes and tapped hole sizes are shown in detail. It also contains interesting charts, diagrams and information of tap grinding and sharpening. Write today on your own letterhead for your copy—free.

Specify **BESLY TAPS** for Smooth, Accurate Threads

Their fine war record proves the capacity of Besly Taps to meet the stiffest specifications for clean-cut, close-tolerance threading . . . No wonder they continue in high demand for the production of peace-time products.

Whatever your requirements—in stock designs or "specials"—there's a Besly Tap that will fill your needs to perfection. In taps, "Besly" means finest steel, skilled workmanship and 50 years experience in making precision taps.

Besly engineers can be of greatest help to you when your selection of taps is still in the "problem" stage. Why not invite their help TODAY? NO obligation, of course.

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CHARLES H. BESLY AND COMPANY • 118-124 N. Clinton St., Chicago 6, Ill. • Factory: Beloit, Wis.

CM HERC=ALLOY SLING CHAINS

boast service records as long as your arm

Ask any plant executive or safety engineer who has used CM Herc-Alloy Sling Chains...their experiences will prove the reasons why that once they are put on a job they "stick." In fact, CM Herc-Alloy Sling Chains shipped years ago are still in service.

The patented Inswell electric welded links and all fittings are of Herc-Alloy formula steel with a tensile strength of 125,000 lbs. per square inch...a safety factor of 150% compared to ordinary sling chain. Herc-Alloy seldom, if ever, requires annealing.

There is a size and type to handle **your** job and prove in service that here is sling chain value **plus** by any method of figuring.

Get all the details now from your mill supply distributor or write us.

COLUMBUS=McKINNON

CHAIN CORPORATION

(Affiliated with Chisholm-Moore Hoist Corporation)

GENERAL OFFICES AND FACTORIES: 136 Fremont Ave., TONAWANDA, N. Y.

SALES OFFICES: New York, Chicago and Cleveland

(Continued from page 188)

serve, Reconstruction Finance Corporation and are available to industry.

The report on processes used in making medical supplies includes a detailed description of the German methods for producing pure gum surgical tubing. Before the war, Germany exported to the United States pure gum transparent surgical natural rubber tubing. This product found considerable favor with hospitals and physicians due to its transparency, smoothness and accuracy of dimensions. The very small size pure gum tubings were particularly difficult to duplicate with normal American manufacturing methods, the report stated.

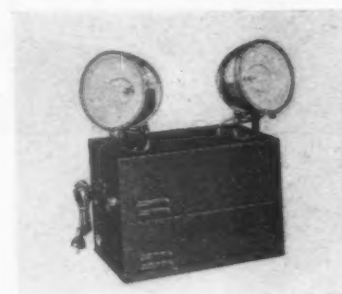
The study of methods used in making insulation for wire and cable asserted that German production rates of this material were "slow" in comparison with American standards. It added that there was no evidence that German synthetic rubber gave better quality than American GR-S (the general purpose synthetic rubber) with respect to physical characteristics or electrical properties in insulations or jackets.

Copies of the two reports, which are entitled "German Medical, Surgical and Sundry Rubber Goods," and "German Synthetic Insulation for Wire and Cable," may be obtained from WPB's Rubber Bureau.

1 1 1

EMERGENCY LIGHTING DEVICE

Designed for instant emergency use, when normal electrical current is interrupted, is the Minuteman Light-Warden,



Emergency lighting device is portable

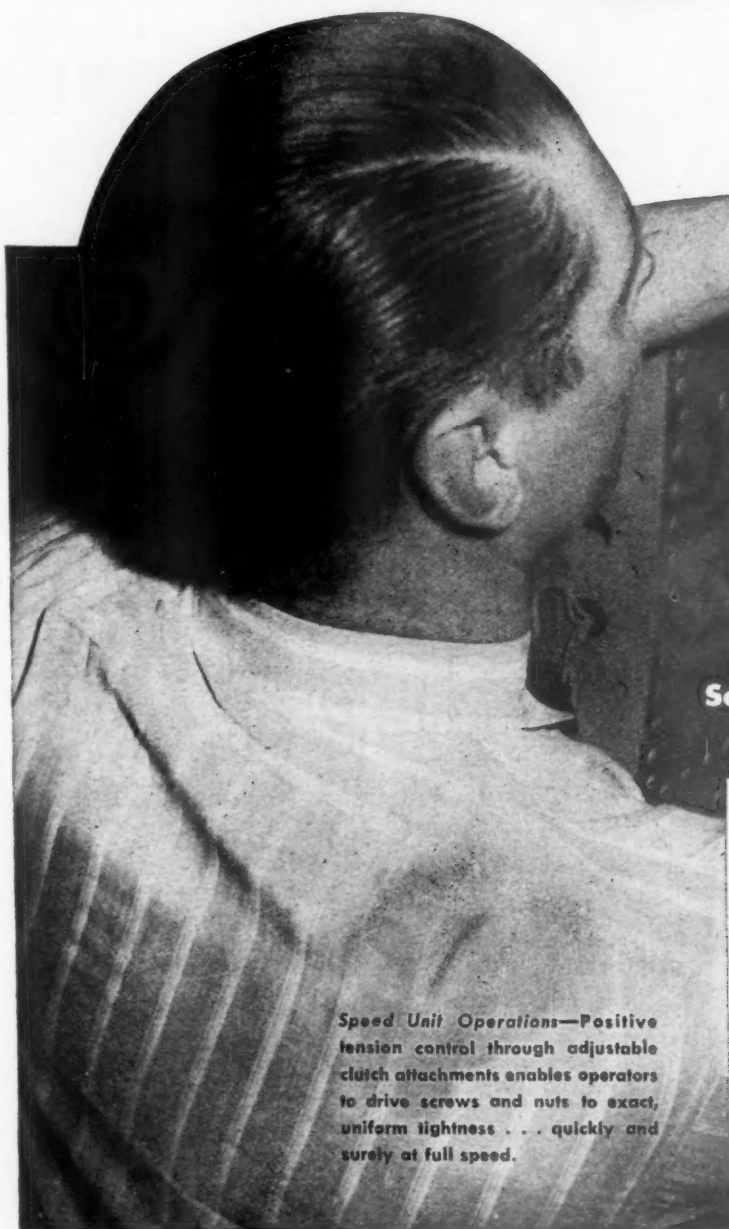
a product of the Electric Cord Company, 50 Church St., New York.

The device is a portable, self-contained emergency lighting system which instantly and automatically floods any protected area with light from its own power. Requiring no special wiring, it can be mounted anywhere — on post, bracket, shelf or platform and plugged in to any convenience outlet.

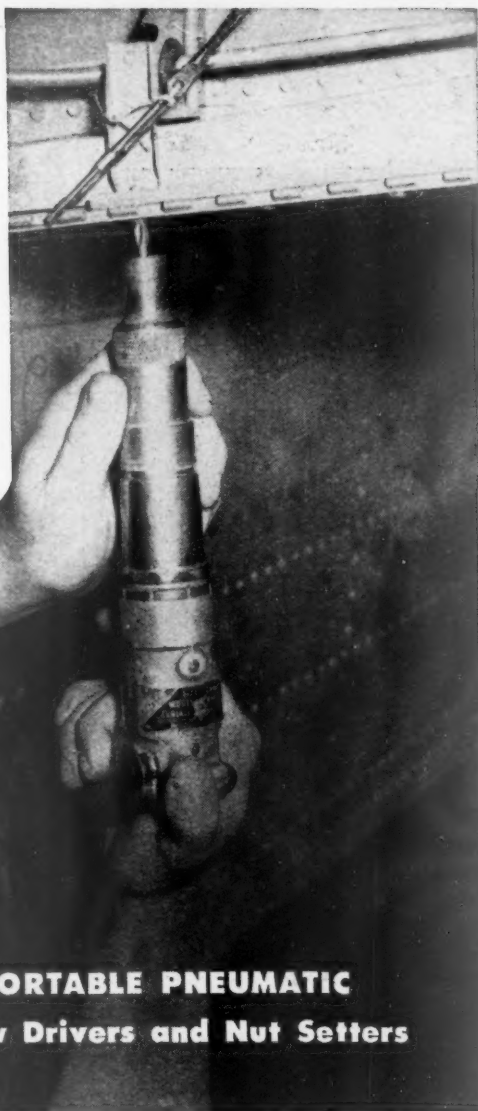
The instant normal current is resumed, the Minuteman lamps go off automatically and a built-in charger restores power to the storage battery for the next emergency. One lamp head — the unit can be equipped with single or double as desired—is capable of illuminating 10,000 square feet of area for approximately four hours.

The Minuteman Light — Warden can be equipped with a built-in transformer which permits every day use without draining battery power.

FASTER Driving ...to EXACT Tightness with *Thor*



Speed Unit Operations—Positive tension control through adjustable clutch attachments enables operators to drive screws and nuts to exact, uniform tightness . . . quickly and surely at full speed.



**PORTABLE PNEUMATIC
Screw Drivers and Nut Setters**

As inventors of the first power screw driver, Thor was naturally first to develop a complete line of efficient assembly tools for every application. Today, you can get precisely the right combination of speed, power and control in a Thor tool to drive screws and nuts of all sizes in virtually any location to exactly the required tightness. For detailed data, write for Thor Reference Manual No. 90.

INDEPENDENT PNEUMATIC TOOL COMPANY

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PORTABLE POWER

TOOLS

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UNIVERSAL ELECTRIC
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QUALITY

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ECONOMY

SERVICE

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AND
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Long fibres for quality ...
pure materials for sanitation
... high absorbency
for economy. Look to
your Straubel Distributor
for complete service
on your paper requirements.

Write for the name
of your nearest
Straubel Distributor

*Straubel*PAPER COMPANY
GREEN BAY, WISCONSIN

PLASTIC FOOD DISHES

A new line of plastic food dishes designed primarily for hospitals but which will find many uses in cafeterias and restaurants where space is at a premium, has been announced by Devine Foods, Inc., Chicago, Illinois.



Plastic food dishes molded of chopped cotton filled melamine plastic.

Made for utility, the dishes may be stacked and easily carried when full, or nested when empty to conserve space and facilitate handling. They are light in weight for easy serving, and are manufactured in different sizes to meet various food requirements.

The Devine dishes are constructed of chopped cotton filled melmac, a melamine plastic developed by the American Cyanamid Company. They combine the outstanding insulating properties of this plastic, keeping foods hot or cold for longer periods, and they are odorless and tasteless as well as resistant to impact, abrasion, weak acids and alkalis.

1 1 1

COMPLETE 16MM FILM ON
"SWAGING" AVAILABLE WITHOUT
CHARGE

An exceedingly interesting and informative motion picture film on the subject of "Swaging" is now available to educational, employer and employee groups.

This 16mm film with sound commentary has been prepared in English, French, Russian and Spanish for preliminary distribution. Its 26 minute run gives a popular Hollywood style portrayal of the many applications of the "swaging process" in today's mass production methods for pointing, shaping, and attaching fittings to bar, cable and tube.

It features the one operation—fast—precision—no scrap—forming type of manufacture which played such a prominent part in the establishment of war time production records.

Steel — including stainless — copper, aluminum and even wood products are shown by the film to be included within the processing scope of the Swager and its derivatives.

The movie has been made available without charge by the Standard Machinery Company of Providence, Rhode Island, where this and a short U. S. Office of Education movie on swaging were filmed. The educational film has been

(Continued on page 194)

NOW! Check and
REPAIR

those
**MASONRY
CHIMNEYS**
and
WATER TOWERS

Trained crews.
Most modern equipment.
Complete facilities.

All work covered with Workmen's Compensation and Public Liability Insurance.

Write for full information and dates when crew will be in your locality.

High Structures Division

ELECTRA
PROTECTION CO., Inc.

Approved Lightning Protection Systems
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**RED TYE
PARTS BAGS**

On the Spot
**WHEN
NEEDED!**



Make sure that small parts, accessories and replacements are on the spot when needed by putting them in a Chase Red-Tye Parts bag and attaching them right to the product. Avoid irritation and loss of time caused by overlooked or mislaid parts.

Chase Red-Tye Parts bags are available in many types and sizes ... with or without tags or envelopes attached for letter, invoice or instruction sheet.

Write for samples and prices.
Also inquire about Chase Red-Tye mailing bags ... for the quick, safe delivery of small replacement parts.

CHASE BAG CO.
302 EAST PITTSBURGH AVE., MILWAUKEE, WIS.
ONE OF THIRTEEN GREAT FACTORIES

EXPERT CRAFTSMANSHIP

In ages past men spent fortunes to own Damascus swords. Their fame and value were due to the expert craftsmanship of the makers whose skill could not be duplicated.

Plumb tools, too, are the work of expert craftsmen who pride themselves in turning out the finest products obtainable.

The one-piece steel head of flawlessly tempered steel, the carefully-shaped handle of shock-absorbing, close-grained hickory, the hang and perfect balance of each Plumb tool are features of craftsmanship. And these qualities have made Plumb tools the favorite of craftsmen for over 90 years.

Fayette R. Plumb, Inc.,
Phila. 37, Pa.



PLUMB TOOLS ILLUSTRATED: Top to Bottom: Nail Hammer, Ball Pein Hammer, Half Hatchet, Single Bit Michigan Axe.

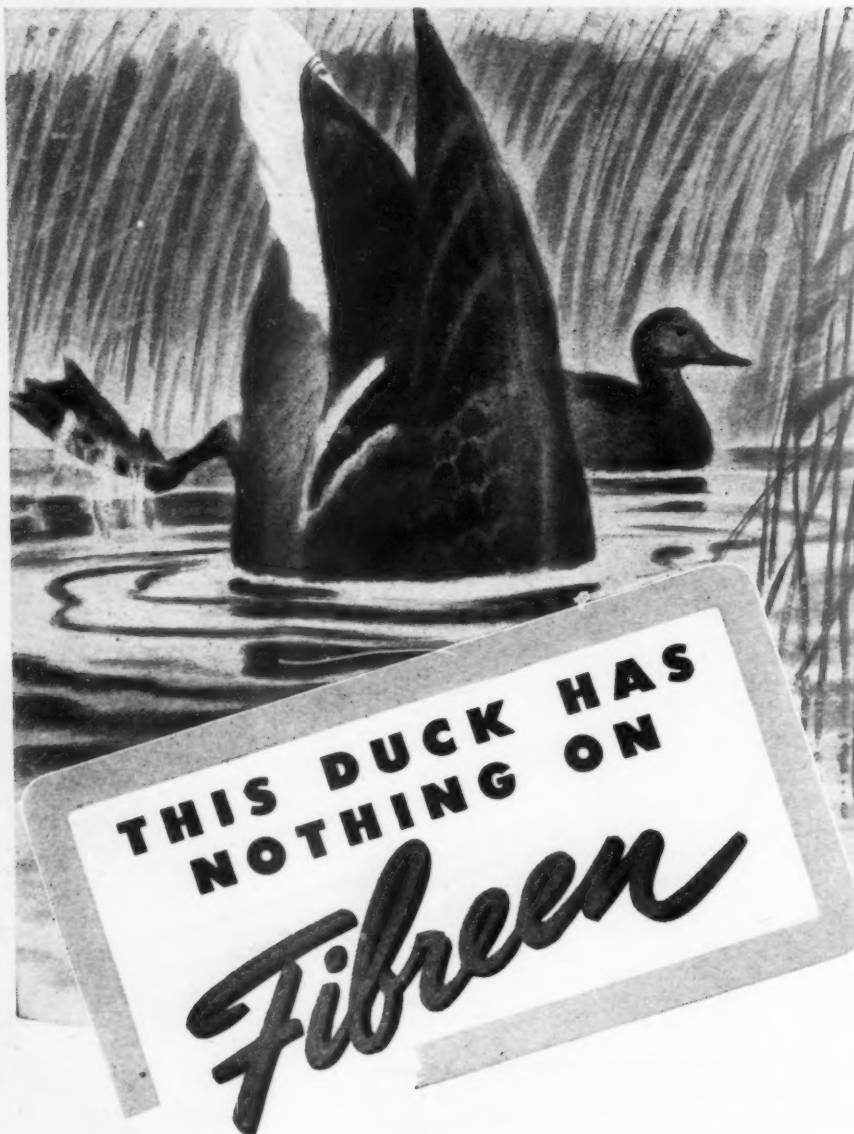
Quality Comes FIRST
PLUMB
is FIRST in Quality



"MORE JOBS AFTER THE WAR"

PLUMB

HAMMERS • HATCHETS • AXES • SLEDGES



THERE'S as much chance for water to penetrate Fibreen as to soak through the feathers of a duck.

Hair pins or housing gears . . . baby buggies or bowling alleys . . . big shipments . . . little shipments . . . look alike to Fibreen when it comes to perfect protection in shipping . . . from water, dirt, dust and rough handling.

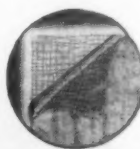
Fibreen reinforced paper is as flexible as a cord yet tough as cow-hide. It is acknowledged as the best of all by industry for any kind of wrapping job . . . small or large.

If you haven't used Fibreen to guard your goods en route to destination, by all means write today for a life-sized sample and case histories of how other manufacturers have used it.

Fibreen has "dived" into many a tough shipping problem and "come up" with the right answer.



Sisal-fibre reinforcement for strength . . . special asphalt for water-proofness . . . kraft paper for clean, easy handling . . . sealed by heat and under pressure to produce Fibreen.



Manufacturers of SISALKRAFT, FIBREEN, SISAL-X, SISALTape AND COPPER-ARMORED SISALKRAFT

(Continued from page 192)

incorporated in the complete "Standard" film.

Copies of the film can be reserved for local showings with Maxwell-Roney, 35-36 76th Street, Jackson Heights, Long Island; The Swind Machinery Company, Philadelphia, Pennsylvania; Wm. K. Stamets Company, Pittsburgh, Pennsylvania and Cleveland, Ohio; Neff Kohlbusch & Bissell, Inc., Chicago, Illinois; Smith Booth Usher & Co., Los Angeles, California; and for export showings with Mr. Stanley H. Rose, 1111 South Ferry Building, New York, New York.

1 1 1

CRUSH FORM GRINDING

The Thompson Grinder Company of Springfield, Ohio, has issued a new booklet which presents for the first time authoritative facts on crush-form grind-



ing precision countours. The presentation describes the requirements of the entire process in detail and in pictorial form.

Specific examples of completely engineered machines and how they are designed to crush and true the wheel by the most efficient process, and produce in the most efficient time, are presented graphically.

The background of experience for this accumulation of facts on crush-form contour grinding, is based on a long period of pioneering by a full time development laboratory of the Thompson Grinder Company. Through this development work, machines have been built and placed in the field during the past 10 years. They have been constantly improved, resulting in the present Thompson Truform Grinder.

"Facts About Crush Form Grinding Precision Countours" may be obtained without cost or obligation by writing Dept. 37 Thompson Crush-Form Contour Grinding Development Laboratory, Springfield, Ohio. A copy of the booklet will be mailed promptly.

1 1 1

TO LICENSE USE OF ELECTRONIC VULCANIZATION

Industry Inventions, Inc., an Ohio corporation, has been established to license the use of electronic vulcanization in the manufacture of rubber and plastic products, it was announced by V. L. Smithers of V. L. Smithers Laboratories, Akron, Ohio. Smithers will be vice-president and general manager of the new company.

(Continued on page 198)

Drop Forged

for Longer Life Under Severest Conditions

- 1. Forged**—to withstand strains of expansion and contraction under temperature extremes.
- 2. Forged**—to eliminate possibility of concealed defects.
- 3. Forged**—for maximum strength to withstand hydraulic shock pressures.
- 4. Forged**—to resist fatigue failures under vibration.



FITTINGS DIVISION

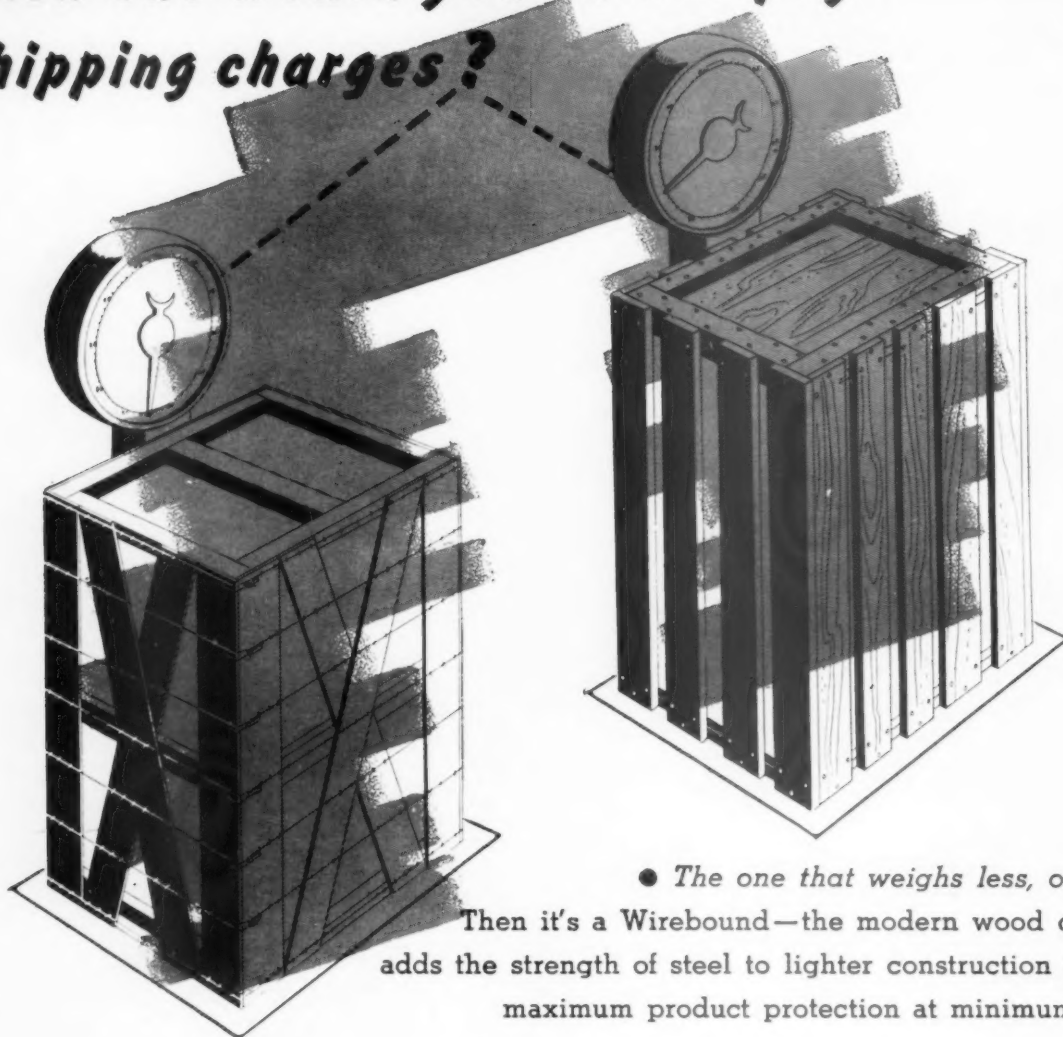
LADISH DROP FORGE CO.

UDAHY • WISCONSIN (MILWAUKEE SUBURB)

District Offices: NEW YORK • PITTSBURGH • CLEVELAND • ST. LOUIS • HOUSTON • LOS ANGELES

A LADISH FEATURE
Ladish Fittings are individually stamped with the symbol of Controlled Quality—the Ladish Heat Code.

*on which one would you rather pay
the shipping charges?*

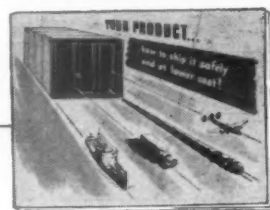


● *The one that weighs less, of course!*

Then it's a Wirebound—the modern wood crate that adds the strength of steel to lighter construction to assure maximum product protection at minimum weight.

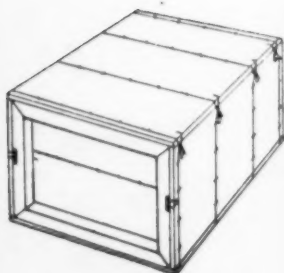
● Remember, it isn't what you save on one shipment that's important . . . it's that single saving multiplied by hundreds and thousands that really counts!

Get ready now to ship your postwar products at lower cost. Without obligation a Wirebound Box or Crate will be designed specifically for your product . . . and it will be pre-tested on modern laboratory devices that simulate all the hazards encountered in actual shipping and warehousing. Wirebound Box Manufacturers Association, Room 1821, Borland Building, Chicago 3, Illinois.



Send today for your free copy of this 24-page book, "YOUR PRODUCT . . . How to ship it safely and at lower cost." Here are a few of the important points covered . . .

- how to reduce shipping charges with a Wirebound that safely eliminates excessive weight!
- gain greater strength, eliminating costly loss and damage claims!
- save 50% or more time in assembling and closing!
- save valuable space in your shipping department!



Wirebound
BOXES & CRATES

**A NEW SLANT
ON COMFORT!**

INTRODUCING THE
SLANT-EZE^{TOP}

NEWEST COMFORT FEATURE OF
HY-TEST *Safety Shoes*



Top slants gradually to front of shoe so that shoe top does not chafe or cause irritating rub in walking. The rounded corner lets the foot flex and bend at ease . . . no square-cut corner to bite into the ankle.

No raw edge in Slant-eze. The edging of tops and lace-stays is skived, folded and then stitched to give a neat "dressy" look and a smooth, easy-wearing feel.

Here's the new slant that does away with ankle-biting of sharp-corner uppers . . . makes it possible for workers to keep safety shoes always fully laced and still enjoy perfect foot comfort. By slanting the top and rounding the corners, Hy-Test creates a new design, the advantages of which are readily evident to all who wear work shoes.

These are the shoes workers will lace up neatly and fully . . . no loose strings to catch in moving machinery . . . no gaping, unlaced uppers to tire the feet and rob the worker of important ankle support. Hy-Test's new Slant-eze top brings extra freedom . . . permits more "bend", allows twisting and stooping without suffering that

irritating rub of rough leathers against the ankle.

Hy-Test Slant-eze also introduces the new folded-edge top and lace-stays as another comfort feature. This eliminates the harsh, raw edge which has been a frequent source of foot irritation in many work shoes. This Slant-eze binding gives comfort without bulkiness, and adds another dress-shoe feature to Hy-Test.

With all the extra protection from Hy-Test's exclusive Anchor-Flange Steel Box Toe, and with the extra comfort of the shoe itself, it is easy to understand why so many workers prefer Hy-Test Safety Shoes.

HY-TEST *Safety Shoes*

THE ONLY SHOE WITH THE
ANCHOR-FLANGE STEEL
BOX TOE



HY-TEST DIVISION • INTERNATIONAL SHOE COMPANY • ST. LOUIS 3, MO. • EASTERN OFFICE • MANCHESTER, N.H.



Important Production Economies with Bearing Bronzes in This New Form

No costly scrap — certain yields — faster
production on screw machines

with **Ampcoloy**
continuous cast bronze rods

For the first time, certain bronze alloys — previously available only as sand, permanent mold, or centrifugal castings — are now produced in 10 foot lengths by a continuous casting process, exclusive with Ampco in the cast bronze field.

The comparative photomicrographs (tin bronze) illustrate the tremendous improvement in quality. Also the materials are adaptable to fabrication on automatic screw machines, with big savings in time, manpower, and money. Sand-free surface—no internal segregation—uniform diameter and even length. Scrap loss due to metal faults practically eliminated.

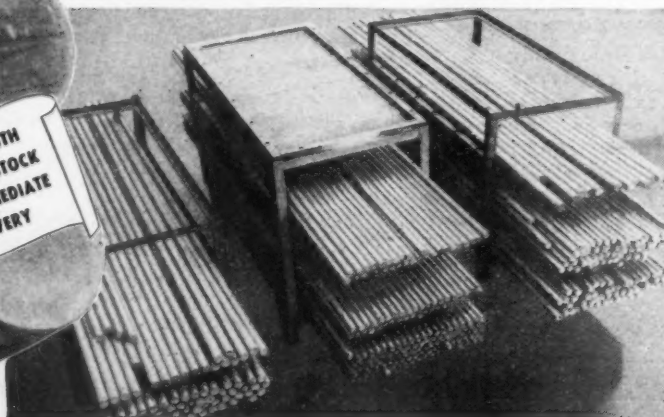
Also available are high-lead bronze and other bearing bronzes. Immediate shipment on rods up to 2" in diameter. Tubes available for prompt shipment, in tin bronze only.

Write for data sheet 131. *Ampco Metal, Inc., Dept. P-11, Milwaukee 4, Wis. Ampco field offices in principal cities.*



Ampcolloys are a product of
Ampco Metal, Inc.
... specialists in engineering, production, finishing of copper-base alloy parts

MILL-LENGTH
RODS IN STOCK
FOR IMMEDIATE
DELIVERY



(Continued from page 194)

The B. F. Goodrich Company and The Firestone Tire and Rubber Company jointly hold patents for electronic processing of rubber and plastics and the new company will make the patents available to the rubber and plastics industries. The electronic method is said to require as little as one-eighth the time formerly required to vulcanize rubber and is already being used in the manufacture of many rubber and plastic products.

Other officers of Industry Inventions, Inc. are: W. F. Avery of B. F. Goodrich, chairman of the board of directors; W. A. Fraser of Firestone, president; H. S. Woodruff of B. F. Goodrich, secretary; E. H. Schulenberg of Firestone, treasurer; and M. J. Moyer of Smithers Laboratories, assistant secretary.

PHOTO-LOFTING REDUCES TOOLING COSTS

New inventions, processes and production short-cuts, perfected during the war, will aid American industry to speed the return to full employment and normal business, according to Nils H. Lou, Glenn L. Martin Company assistant to the Vice-President, Manufacturing, speaking before the Baltimore Chapter of the American Society of Tool Engineers, 6 W. Fayette Street.



Sewing a template to outlines photo-graphed on template material

By way of illustration, he cited a unique photo-reproduction process developed by the Martin Company in the early stages of the war. Known as "photo-lifting", this process involves the use of a specially equipped camera, weighing ten tons together with its superstructure—probably the largest camera in the world, yet as foolproof in operation as a simple box camera.

By allowing engineering plans to be photographed on sheet metal with uniform accuracy, Mr. Lou said, it eliminates many steps formerly required in toolmaking. Thus it materially reduces the time needed for factory tooling, which must be completed before peacetime production can actually get under way.

Mr. Lou pointed out that the United States' ability to tool rapidly and effectively was a major factor in defeating the Axis, and may now be an equally decisive factor for peace.

(Continued on page 202)

One
call
to
one
local
source



WILL BRING YOU ANY ELECTRONIC TUBE YOU NEED...

HERE'S HOW THE WESTINGHOUSE SURVEY AND SUPPLY PLAN WORKS! A Westinghouse tube distributor or representative will survey your electronic equipment to determine the number and type of each tube, regardless of make.

A Westinghouse tube distributor or representative also will make tube surveys of the other plants in your area to determine the quantity, number and type of tubes required.

Your Westinghouse tube distributor then has an accurate picture of tube requirements of your entire area on which he may base his tube stock. This stock will include all the tubes which your equipment requires, regardless of make.

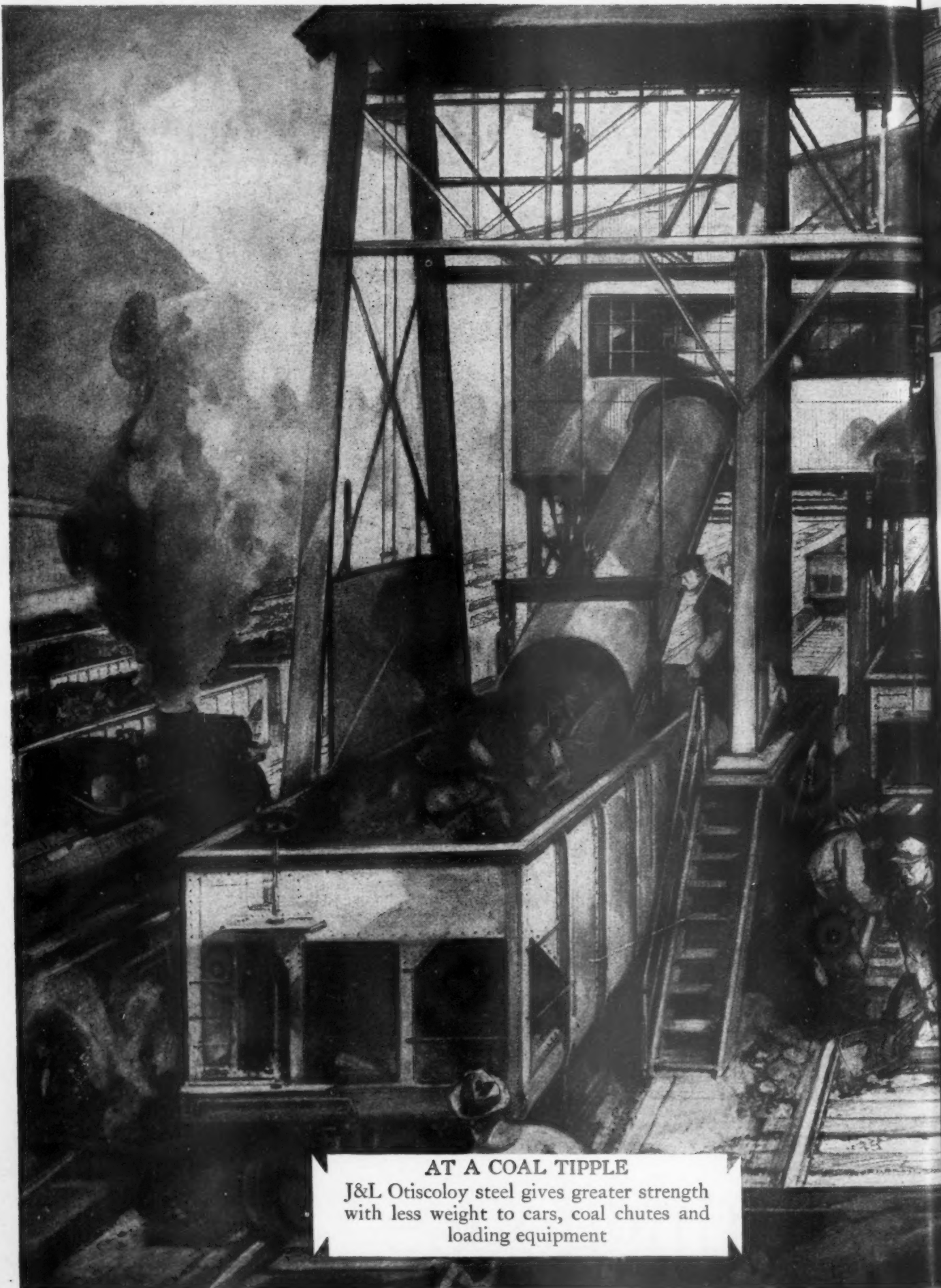
HERE'S WHAT YOU GET! A copy of the survey of your equipment. A report on the tubes used in your plant. Prompt delivery on the tubes you need from your local Westinghouse tube distributor, where your order is placed.

FOR A SURVEY OF YOUR PLANT . . . call your local Westinghouse tube distributor or representative or write Westinghouse Electric Corporation, Lamp Division, Bloomfield, N. J.

TUNE IN: John Charles Thomas—Sunday, 2:30 pm., EST—NBC.
Ted Malone—Monday through Friday, 11:45 am., EST—ABC.

Westinghouse

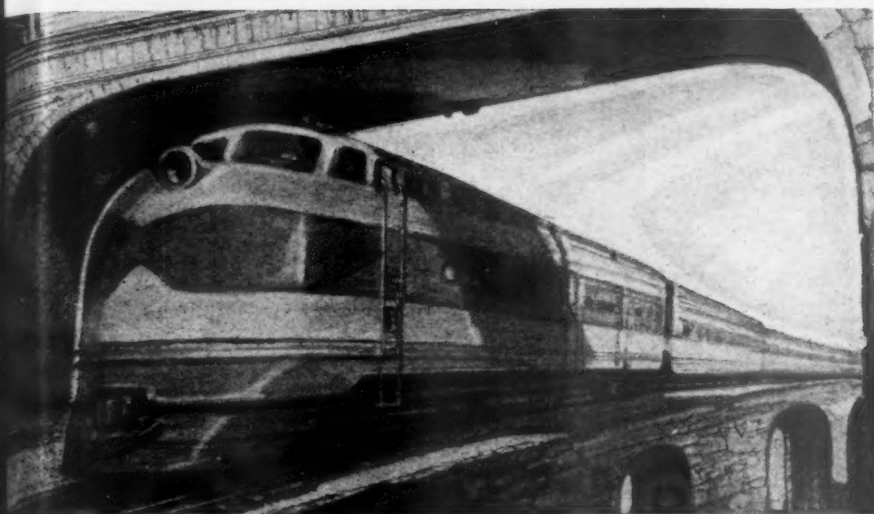
Electronic Tubes at Work



AT A COAL TIPPLE

J&L Otiscoloy steel gives greater strength
with less weight to cars, coal chutes and
loading equipment

DRAWN FOR JONES & LAUGHLIN STEEL CORPORATION BY ORISON MACPHERSON



MORE PAYLOAD....LESS DEADWEIGHTLONGER LIFE WITH J&L HIGH-TENSILE OTISCOLOY STEEL

In the large and diversified family of J&L controlled quality steels, OtiscoLOY is the low-alloy, high-tensile member that serves widely and well where reduction in structural weight, without loss of strength, is a factor.

A field in which this is highly advantageous is transportation where unnecessary deadweight is a constant charge against revenues and where its reduction is reflected in increased payloads.

On account of its greater strength and lighter weight, OtiscoLOY reduces deadweight by 25%. It also lengthens the life of equipment from four to six times by its resistance to atmospheric corrosion and by its greater resistance to abrasion. To the manufacturer of transportation equipment, OtiscoLOY steel offers an easily workable material, for it can be readily formed, either hot or cold, on present-day presses and has excellent weldability.

For all ingenious engineers and fabricators, OtiscoLOY is a spark to the imagination, a spur to the conversion of blue prints into new products of steel that are strong, light and lasting.

JONES & LAUGHLIN STEEL CORPORATION

PITTSBURGH, PENNSYLVANIA



LIGHTER, STRONGER, CONTROLLED QUALITY STEELS

COPYRIGHT 1945. JONES & LAUGHLIN STEEL CORPORATION

LIGHT & STRONG

Steel freight cars and passenger cars are now being built by thousands. Many will be constructed of OtiscoLOY, a special, light-weight steel developed by J&L that has great strength, workability, weldability, and assures gains in the payload up to 25%.

OtiscoLOY (pronounced O-tis-co-loy) was developed in and named for J&L's Otis Works, Cleveland. This special steel is also produced in other J&L works as continuous sheets and as bars of varied forms.

Coal still king on R.R.'s as biggest, cheapest source of primary energy for locomotive power. Through Bituminous Coal Research, Inc., several big rail carriers are conducting research toward development of (a) gas turbine locomotive using coal as basic fuel, and (b) high-powered steam turbine-electric locomotive, burning coal.

When you compare watches with train conductor, his is correct, for it must be kept within 30-second variation per week.

"Riding the gravy train," an expression that may lack elegance, aptly describes the gain in revenues enjoyed in the operation of trains made up of equipment fabricated from OtiscoLOY, the J&L high-tensile steel that reduces deadweight by 25%. In an average hopper car the saving OtiscoLOY affords gives a net gain in the payload of 11,000 pounds, or 5½ tons. In a 100-car train, this amounts to some 550 tons, which is quite a ladleful of "gravy" in revenue.

R.R.'s carry 72% of ton-miles handled by all carriers, including water, motor, pipe line and air.

Europe needs million freight cars, American army transportation experts estimate, many thousands of which will be constructed of light, strong, high-tensile American steels.

"T"-rail, hook-head spike, fish plate were invented in 1830's by Robert L., son of John Stevens, builder of 1st U. S. locomotive.

½ ton more pay freight can be hauled when you operate a large truck made from OtiscoLOY, for this is the average saving afforded by this J&L high-strength steel.

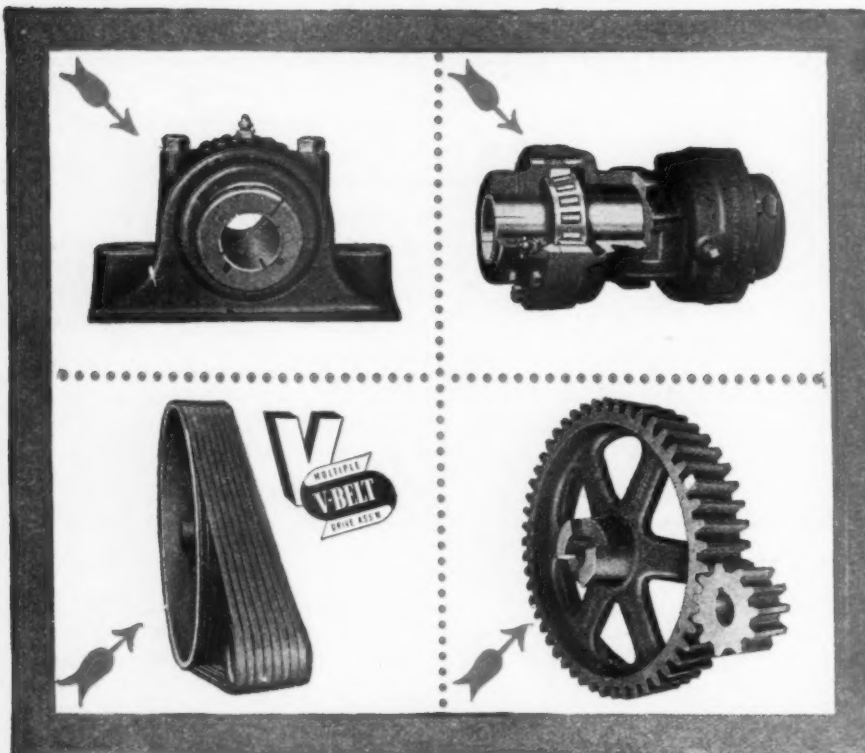
Brake wheel frames on every great bomber in our huge sky fleet and on many other of our fighting aircraft, were made of OtiscoLOY, to save weight and add strength.

When bumpers were just leaf springs, their simple shape made processing easy. They were hot formed, ground and polished, then plated. However, the hot forming process became complicated when deeper, more intricate bumpers with end extensions were made. The spring steel distorted noticeably on cooling, requiring more grinding and hand work before plating. As a result, companies designing cars with heavier bumpers began to look around for stronger, lighter, more workable steel, such as OtiscoLOY, and the trend toward high-tensile steels for this use seems assured.



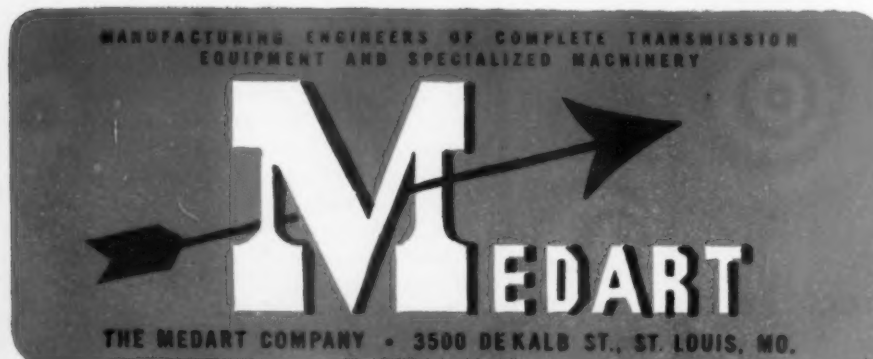
...to avoid reconversion headaches!

**COMPLETE POWER TRANSMISSION
EQUIPMENT FROM ONE SOURCE
FOR EFFICIENCY AND ECONOMY**



"Patents make Jobs"

- | | | |
|------------------------|---------------------|------------------------------|
| • Shaft Hangers | • Chain Drives | • Rigid Shaft Couplings |
| • Bicycle Type Sheaves | • Set Collars | • Flexible Shaft Couplings |
| • V-Belt Drives | • Hercules Pulleys | • Universal Shaft Couplings |
| • Cast Iron Pulleys | • Wood Pulleys | • Medart-Timken-Bearings |
| • Steel Rim Pulleys | • Shafing | • Iron & Semi-Steel Castings |
| • Ring Oiling Bearings | • Friction Clutches | • Wire Rope Sheaves |
| • Wick Oiling Bearings | • Sprockets | • Cut Tooth Gearing |
| • Belt Tighteners | • Pattern Work | • Molded Tooth Gearing |



(Continued from page 198)

"Until the factories, yards and plants, so recently geared for war, have retooled for peace", he said, "the battle will not be fully over, nor the rewards of peace assured."

"Possibly some people who do not know the United States doubt this country's ability to reconvert such a vast industrial network to peacetime production in an orderly manner; just as others were formerly sceptical of its power to deliver sufficient weapons of war in time. We disappointed the sceptics once, and we will do so again. . . . The tool engineers of America have one more big job to finish."

The Martin photo-lifting process, Mr. Lou said, can assist tool engineers to accomplish that job with the greatest



Construction of assembly fixtures by mounting locators and clamps directly on photographed layout.

possible dispatch. While recognizing that many other short cuts and time saving processes have been developed by wartime industry, he said this appears to be only one so generally applicable to tool engineering.

Used by the Boeing, Grumman, Beech and Chrysler Companies, as well as by Martin during the war, photo-lifting made practicable the mass production of very large aircraft, such as the Mars and the B-29 Superfortress. It cut the time required for tooling the B-26 Marauder as much as 100,000 hours and will do the same for the forthcoming commercial transport, Model 202.

Applicable to a variety of fields besides aircraft, it has been used by the Navy in building ships, and may now be used to hasten the delivery of automobiles, washing-machines, refrigerators and many more peacetime products.

↑ ↑ ↑

**LINCOLN WELDING HANDBOOK
EIGHTH EDITION**

Entirely revised to include the latest data on new arc welding methods and equipment, the eighth edition of the "Procedure Handbook of Arc Welding Design and Practice" is just announced by the Lincoln Electric Co., Cleveland, Ohio. The book, which includes details of the most recent welding methods and techniques, many of which played a dominant part in winning the European and Pacific wars, incorporates a wealth of new

(Continued on page 206)

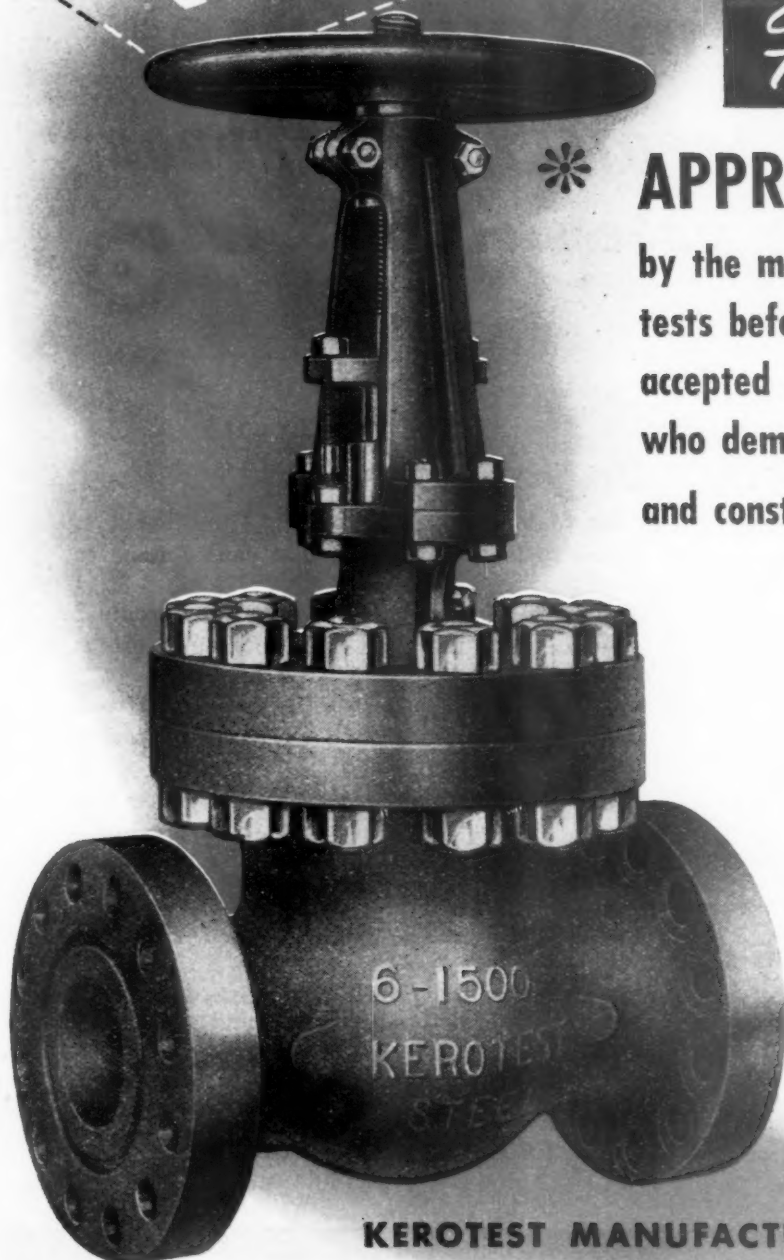
KEROTEST VALVES

Fittings Accessories

APPROVED

APPROVED

by the men who make elaborate tests before any equipment is accepted . . . by the industries who demand precision **PLUS** and constant dependability



The old "rule of thumb" in selecting valves—or any type of service equipment is out. Wartime conditions have conclusively proven to industry (and many others) that numerous production slow-downs and excessive maintenance costs could have been prevented—by selecting the *right* valve for the *right* application. The Kerotest organization specializes in building correctly designed, precision-engineered valves to meet your specific application.

Send your specifications for quotations

"Kerotest is one of just fifteen manufacturers to receive the Fifth Star and final award for their Maritime Flag."

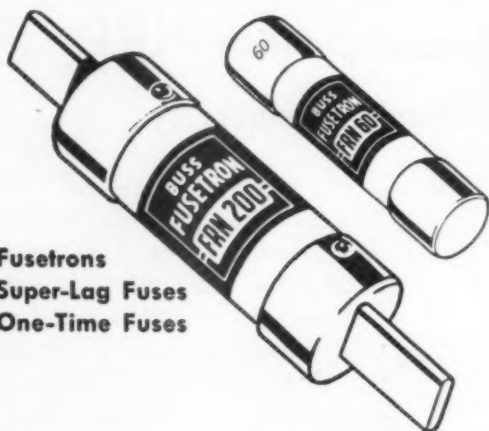


**KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.**

Valves.. Accessories.. Fittings

These
TWO FREE HANDBOOKS
 Will Help You Get the Most
 Service from Your Fuses
"FUSEOLOGY" and "PROTECTION HANDBOOK"
—offered by the makers of BUSS Fuses

BUSS Fusetrons
 BUSS Super-Lag Fuses
 BUSS One-Time Fuses



BUSS Fustats



BUSS Plug Fusetrons
 BUSS Plug Fuses

Do you know —

What to do when fuses blow?
 Where to look for trouble that caused fuses to blow?
 What to do after you have found the trouble?
 How to select the right type fuses for various circuits?
 How to determine the proper size fuse or fusetron?
 How to save material and cut costs on motor installations?

(Answers to these and many other questions are found in "FUSEOLOGY")

Do you know —

How to determine size wire to be used—and volt loss?
 How to select the proper protective device for electric circuits, motors, appliances, and apparatus?
 Code rules on motor protection?
 Size of switch or fuseholders required?

(These are typical questions answered in "PROTECTION HANDBOOK")

BUSS FUSES



THESE helpful handbooks are furnishing many maintenance men, electricians, and contractors with useful, practical information. Everything in them is practical, clear, simple, and understandable. Both of these handbooks are well illustrated with charts, diagrams, and drawings. Anyone connected with fuse maintenance or installation can get these practical aids free.

If there are other men in your organization who you think would find either or both of these booklets helpful, send their names also.

BUSSMANN MANUFACTURING COMPANY

Division McGraw Electric Company

University at Jefferson, St. Louis, Mo.

Send the Coupon NOW

**Sold Through
Wholesalers**

BUSSMANN MFG. CO., *Division McGraw Electric Co.*
University at Jefferson, St. Louis, Mo.

Please send me a copy of: ☐ Fuseology ☐ Protection Handbook. Check one desired.

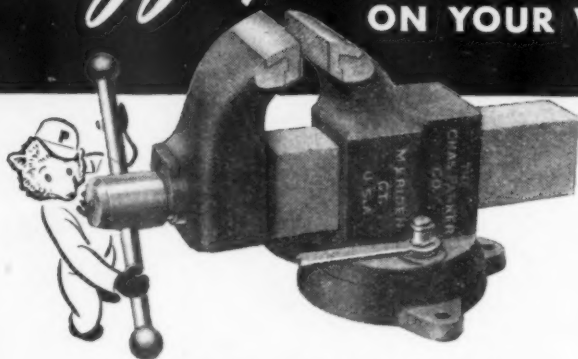
Name _____ Title _____

Company _____

Address _____

City and State _____

GET A "Grizzly Grip" ON YOUR WORK



... and Banish Costly Slips

A slip of the work in the vise can mean spoiled jobs or injured workers. Steer clear of such shop headaches by specifying Parker Vises. Made by America's first vise-maker, the Parker holds tight

— its renewable steel jaws "grip like a grizzly". Many other exclusive and worthwhile features. Ask your distributor for details. The Charles Parker Company, Meriden, Connecticut.

PARKER VISES

America's Oldest



**BEARING
LOCKNUTS**
N 00 TO AN 40
★
STANDARD
★
HEAVY DUTY
★
SPECIAL
★

Vital Links in modern Production

**ALLIED MACHINE &
ENGINEERING CORP.**
NEW PHILADELPHIA, OHIO

(Continued from page 202)

information that obsoletes much of the previous literature on welding, according to the publishers.

Book is 6 x 9 inches, 1,312 pages, and contains 1647 illustrations including photos and drawings; cover, semi-flexible simulated leather; price postpaid United States \$1.50 per copy; elsewhere \$2.00 per copy.

1 1 1

PLASTIC-GLASS CLOTH BASE SUPPORTS TWO TONS

Weighing only seven and one half pounds, this "A" shaped brace can support two tons, is chemically inert, radio



"A" shaped brace weighs 7½ pounds

transparent and fungus resistant. Composed of layers of glass cloth bonded by American Cyanamid Company's Laminac and manufactured by Fibremold, Inc., Medford, Mass., the brace was used in the construction of Navy heavy radar installations. Other requirements called for in the radar brace were shock and vibration resistance, high flexural and tensile strength.

1 1 1

ISSUES CLASSIFICATION OF PLASTICS MOLDING MATERIALS

Culminating over two years of concentrated effort on the part of technicians in the plastics industry, the Society of the Plastics Industry, Inc., has just issued a classification of plastics molding materials which is already being characterized by those who have seen it as one of the foremost steps yet taken in the field.

The classification is aimed to provide data comparable to that which has been available to those employing wood, metals and other materials in their operations. It presents in chart form an authentic guide to the various properties of plastics molding materials as established by the material makers and molders. Both thermosetting and thermoplastic materials are included and values shown for their mechanical, electrical, optical, thermal, chemical and aging properties.

Issuance of the classification marks the first step in an SPI technical program which is already well advanced. Internationally-known authorities are collaborating in this program and expectations are now that the handbook will be available to the industry in a short time. Copies of the classification chart

(Continued on page 208)

Thermoid — Key to Progress in Many American Industries



Old-style mining. Compare this to the photo shown below.



Modern mine equipment using Thermoid Air Hose.



SINCE 1880, Thermoid has contributed to the progress of American Industry. Through three wars, and the intervening periods of peace, Thermoid engineering, research and manufacturing facilities have been devoted to the production of longer life parts for coal mining.

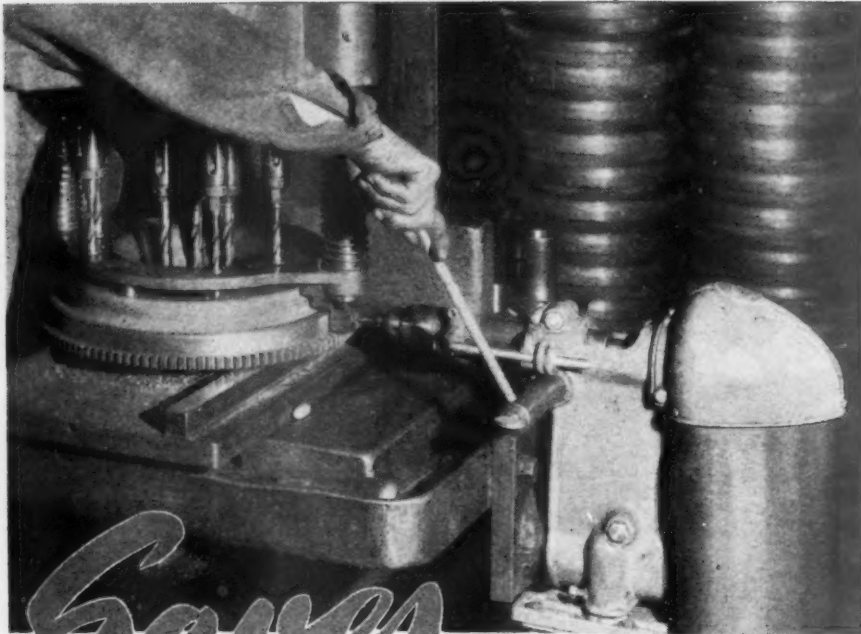
Thermoid stands today in a position, unsurpassed by any competitor, to contribute to the post-war progress of your industry. The Thermoid Line* of belting and hose for materials handling and power transmission may contain the key to another step forward in the improvement of your process and the reduction of your costs.—"It's Good Business to Do Business With Thermoid."

***THE THERMOID LINE INCLUDES:** Transmission Belting • F.H.P. and Multiple V-Belts and Drives • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Sheet Packings • Industrial Brake Linings and Friction Products • Molded Hard Rubber and Plastic Products.

Thermoid Rubber

DIVISION OF THERMOID COMPANY
TRENTON 6, NEW JERSEY

Contributor to Industrial Advancement Since 1880



**Saves the cost
of an extra operation...**

**by supplementing automatic machine
with a standard, low-cost Delta component**

**The success of other plants warrants
your consideration of these money-
saving production ideas:**

- 1.** Save the extra cost of special machines, by using standard, low-cost Delta components to build high-production, specific-purpose machines — quickly convertible to other uses when requirements change.
- 2.** Save the extra cost of new machines, by modernizing your present units that are approaching obsolescence — replacing worn elements with regular, stock-model Delta components.
- 3.** Utilize the portability and compactness of Delta-Milwaukee Machine Tools, to revise or supplement production-line layouts for more efficient operation.

MA-26

Delta's 76-page Blue Book provides 140 case histories of valuable war production experience that suggests similar peacetime applications in your plant. Also available is a catalog of low-cost Delta-Milwaukee Machine Tools. Request both, using coupon below.

Delta
MILWAUKEE

Machine Tools

Taking advantage of the light weight and compactness of Delta-Milwaukee Machine Tools, J. I. Case, Racine, Wis., developed the special setup illustrated — to enable an automatic drill press operator to perform an additional step at no extra labor cost.

A 14" Delta drill press head has been mounted horizontally to the table of a drill press equipped with a multiple-drill head. The operator starts the automatic feed of the multiple-drill head — then drills a hole in the periphery of a flywheel with the Delta machine.

An economical short-cut such as this speeds production, provides ease of operation, and reduces costs. It is typical of the ways in which hundreds of plants have employed Delta's modern, flexible approach to tooling.

Delta's savings in cost, weight, and space are not obtained at the expense of quality. They result from advanced design and from quantity production of standard models.

Perhaps the versatility of Delta-Milwaukee Tools may help solve your production problems. Investigate!

THE DELTA MANUFACTURING CO.
642M E. Vienna Ave., Milwaukee 1, Wisconsin

Please send my free copies of Delta's 76-page Blue Book and catalog of low-cost machine tools.

Name.....
Position.....
Company.....
Address.....
City..... State.....



(Continued from page 206)

and explanation are available now upon request to The Society of the Plastics Industry, Inc., 295 Madison Avenue, New York 7, New York.

1 1 1

SAVE SHOOK LOADING TIME

In their box factory at Lewiston, Idaho, Potlatch Forests, Inc. are saving about two-thirds the time formerly spent in handling box shook since they have put their HYSTER "20" Lift Truck into operation.

The shooks are placed at the end of the bundling belt on light, one-inch-skips



Cutting shook-loading time in half.

with two small spacers. From there they are transported in complete packages directly into the box cars by the "20", entirely eliminating rehandling. It takes approximately two hours to load a car with the HYSTER "20" as compared to about 4 hours previously with three men working.

1 1 1

ESTABLISH ADVISORY SERVICE FOR PLASTICS USERS

Monsanto Chemical Company's Plastics Division, Springfield, Mass., announces it has formed an application advisory group to assist manufacturers in using plastics, entirely without charge or obligation. Known as the Plastics Technical Council, the group was created after a study of the information needs of manufacturers using or contemplating the use of plastic materials in their products or processes.

The council, whose present membership consists of 10 engineers and chemists, will study problems and proposed applications submitted to Monsanto by manufacturing and merchandising companies. Working in close collaboration with the research and engineering departments of the company, the council will formulate a set of recommendations for presentation to the inquiring manufacturer.

The study which resulted in the formulation of the Technical Council revealed that the large number of different plastics now available presented a confusing picture to companies approaching the field for the first time or with a new problem.

There are now more than 20 different plastic materials manufactured on a commercial scale, which can be grouped into

(Continued on page 210)



STEEL THE SAME—

SKILL THE SAME—

SERVICE

IS AGAIN QUICK AND READY

**J&L
STEEL**



Steel drums for all manner of products for peaceful use and employment are rolling off the production lines in all of our plants. Our conversion was more of a change of paint than that of pace — from the colors of the Armed Forces to the colors our customers ask for, to give identification to their drums and barrels and to help advertise the products they contain.

The steel is the same — J&L Controlled Quality Steel. The skill is the same — men trained to the job and most of them on the job these many years. And once again service to domestic users is the same as before the war — ready and quick to respond to your needs . . . from plants strategically located for prompt deliveries. We invite your inquiries and your orders.

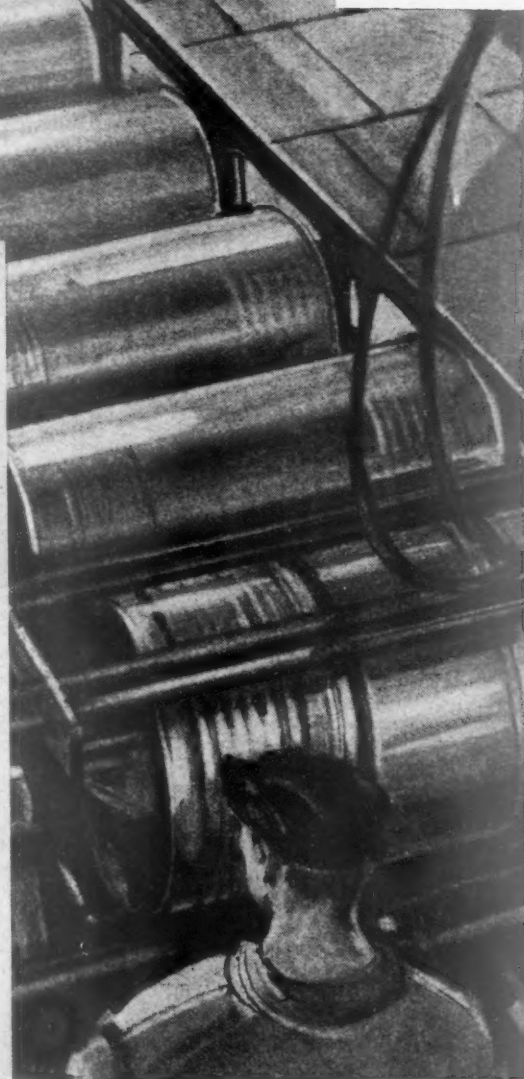
Ship in Safety—Ship in Steel

J & L STEEL BARREL COMPANY

A SUBSIDIARY OF JONES & LAUGHLIN STEEL CORPORATION
PITTSBURGH 30, PA.

PLANTS:

BAYONNE, N. J. • CLEVELAND, OHIO • LAKE CHARLES, LA. • NEW ORLEANS (GRENA), LA.
NO. KANSAS CITY, MO. • PHILADELPHIA, PA. • PORT ARTHUR, TEXAS • ST. LOUIS, MO.



SIMPLE ANSWER



**TO TOUGH
FASTENING
JOBS!**

B.F. Goodrich RIVNUT

Use as **BLIND RIVET...**
or as a **NUT PLATE**

HOW RIVNUT WORKS

1. Rivnut is threaded on pull-up stud of heading tool. Then placed in hole with head firmly against work.



2. A squeeze on the tool lever retracts pull-up stud slightly, causing a ring-type bulge upset of the Rivnut.



3. When pull-up stud is removed, Rivnut provides a nut plate for accessory attachment. Threads grip screw firmly.



FULL FACTS IN FREE DATA BOOK



Can Rivnut solve your fastening problem? This book will give you all the answers. 40 fact-packed pages, completely illustrated. Write to The B. F. Goodrich Company, Dept. PU-11, Akron, Ohio.

(Continued from page 208)

seven classifications. Each of the men sitting on the Monsanto Plastics Technical Council is a specialist in one of these classifications. In addition, experience and background in metals, wood and other materials is represented. It's expected therefore that recommendations of the group will cover a broad area and be free from tendency to over-emphasize the importance of any one class of compounds.

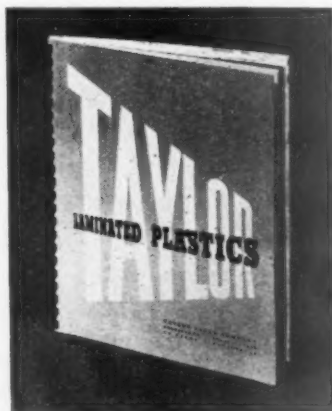
The field of plastics is so broad that no one man can be expert in all materials, and, in order to assure intelligent application advice it is necessary to bring the specialists together, each making contribution to a common pool of data.

As it is now constituted, the Plastics Technical Council comprises men who specialize on thermosetting molding materials, thermoplastic molding materials, sheet thermoplastics, vinyl resins, thermosetting industrial resins, and impression molding materials, together with representatives of research and application laboratories.

On problems considered to date a surprisingly high proportion have resulted in recommendations for the use of materials other than plastics.

NEW CATALOG OF LAMINATED PLASTICS ISSUED BY TAYLOR FIBRE COMPANY

Fortuitously coinciding almost exactly with the end of the war, the new catalog and handbook on laminated plastics published by Taylor Fibre Co., Norristown, Pa., is now ready for distribution to



manufacturers who, in their reconversion problems, are seeking information about readily-available plastics for use in their post-war products.

In 54 colorful, generously-illustrated pages, the new catalog presents in ready reference form, all the essential factual data and engineering information about Taylor Phenol Fibre, Vulcanized Fibre, and the new Phenolastic Fibre, as well as Taylor Insulation (Fish Paper), Taylor Silent Gear Material, Special laminates, Molding, and Assemblies. A special feature of the new catalog is a section devoted to fabricating data which contains the latest shop practices for machining laminated plastics and for servicing the tools and machines used in the many machining processes possible with laminated plastics.

Angier

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1895 - 1945

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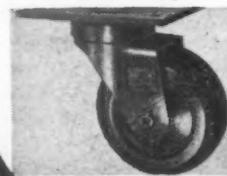
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Made in stainless, low carbon, high carbon, alloys and Monel metal. Also bimetal in any combination of metals. In welded, seamless or spiral brazed construction.

Sizes to $\frac{5}{8}$ -inch outside diameter.



DESIGNING or redesigning parts? New low-cost method originated by **AGALLOY** coils a variety of metals into tubular forms.

Outside diameter to four inches; length to 22 feet; thickness to 16 gauge.

Write for
detailed information to

TECHNIQUE

AGALLOY TUBING COMPANY

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EXECUTIVE AND SALES OFFICES: 1027 NEWARK AVENUE, ELIZABETH 3, NEW JERSEY

CHICAGO OFFICE: 221 NORTH LA SALLE STREET, CHICAGO 1, ILLINOIS



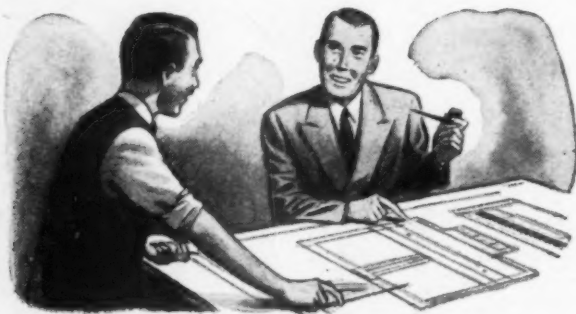
TUNES OUT TROUBLE

When slotted screws were used by this musical instrument maker, head breakage and driver skids damaged expensive assemblies—required disassembly, costly refinishing, and reassembly. A shift to Phillips Recessed Head Screws ended this trouble, permitted lower assembly costs.



SWING TO SAVINGS

Because the recessed head makes more efficient use of turning power, Phillips Screws can be set up tighter without danger of burring. As a result, fewer Phillips Screws are needed to make the rigid assembly required—a further saving in time and material.



IN TIME WITH TOMORROW

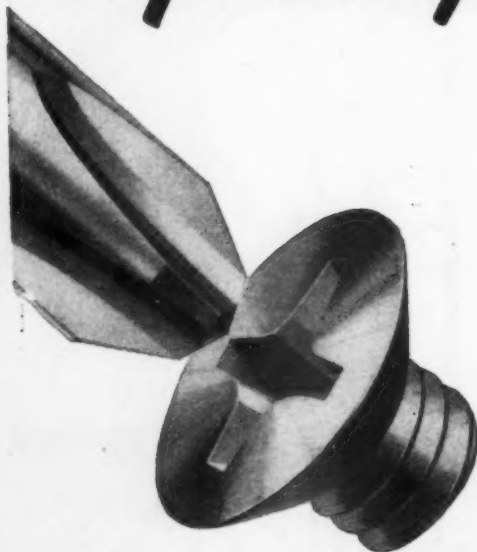
Besides reducing costs and speeding up production, Phillips Screws help designers plan new, simpler methods of achieving strength, rigidity, and improved appearance. Result—a product in step with design trends—and a match for competition in tomorrow's tough markets.



SALES HIT HIGH NOTE

From the sales angle, Phillips Recessed Heads make fastenings a *feature*! No unsightly burrs to cool off prospects! The ornamental pattern of the Phillips Recess blends in harmony with modern design... helps start cash registers ringing a sweet sales symphony!

It's Phillips... the engineered recess!



In the Phillips Recess, mechanical principles are so correctly applied that every angle, plane, and dimension contributes fully to screw-driving efficiency.

... It's the exact pitch of the angles that eliminates driver skids.

... It's the engineered design of the 16 planes that makes it easy to apply full turning power—without reaming.

... It's the "just-right" depth of recess that enables Phillips Screw Heads to take heaviest driving pressures.

With such precise engineering, is it any wonder that Phillips Screws speed driving as much as 50%—cut costs correspondingly?

To give workers a chance to do their best, give them faster, easier-driving Phillips Recessed Head Screws. Plan Phillips Screws into your product now.

PHILLIPS *Recessed Head* SCREWS

WOOD SCREWS • MACHINE SCREWS • SELF-TAPPING SCREWS • STOVE BOLTS

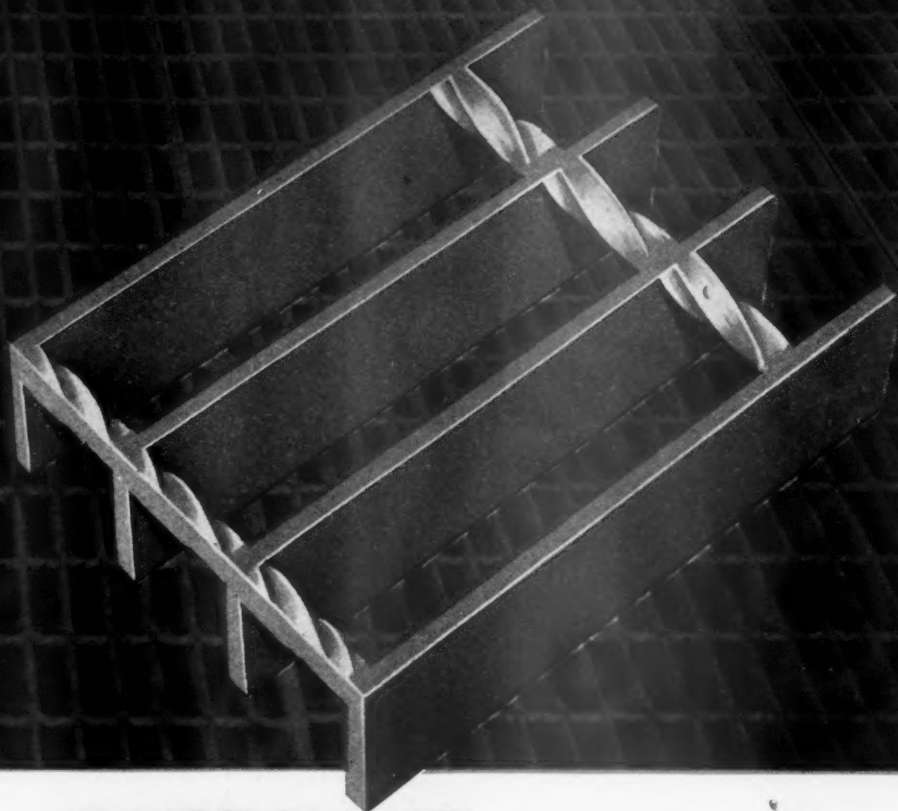
Made in all sizes, types and head styles

**25
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Atlantic Screw Works, Hartford, Conn.
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Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
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The Corbin Screw Corp., New Britain, Conn.
General Screw Mfg. Co., Chicago, Ill.

The H. M. Harper Co., Chicago, Ill.
International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
Manufacturers Screw Products, Chicago, Ill.
Milford Rivet and Machine Co., Milford, Conn.
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N. H.
Parker-Kalen Corp., New York, N. Y.
Pawtucket Screw Co., Pawtucket, R. I.

Pheoli Manufacturing Co., Chicago, Ill.
Reading Screw Co., Norristown, Pa.
Russell Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.
Seovill Manufacturing Co., Waterville, Conn.
Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
The Steel Company of Canada Ltd., Hamilton, Canada
Wolverine Bolt Co., Detroit, Mich.



SIMPLE, *isn't it?*

Yes, it is, but there's no other grating like it for safety and long-term economy.

Actually Blaw-Knox Grating is a one-piece, electroforged steel "material" which can be made to measure or cut to fit . . . Note these exclusive features:

1. Self-cleaning, no sharp corners to clog.
2. Maximum open area for light and air.
3. Easy to maintain . . . paint reaches entire surface.
4. Rigid electroforged construction means easy installation.
5. Twisted cross bar provides safe footing at all times.

Write for complete catalogue on grating.

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Why These Three prefer G-E

Users of fluorescent lighting, engineers and maintenance men are enjoying more efficient lighting by using G-E Watch Dog Starters. These manual reset starters are providing the utmost in all-around fluorescent lighting service in war factories all over the nation. That's why these three prefer G-E.



- 

1 **Users**—are more satisfied with lighting fixtures equipped with G-E Watch Dog Starters because they banish annoying blink and flicker of dying lamps. Blinking cannot possibly recur once the Watch Dog Fluorescent Starters lock out.
- 

2 **Lighting Engineers**—specify G-E Watch Dog Fluorescent Starters because of their unusually long life. The Watch Dog outlasts five ordinary starters. This is equivalent to approximately three years of fluorescent lighting service.
- 

3 **Maintenance Men**—like G-E Watch Dog Starters because they reduce fluorescent lighting maintenance to the simple job of pressing a red button before relamping. Reset it . . . forget it.

Would you like to know more about G-E Watch Dog Starters? Write for our bulletin, "How to Use Fluorescent Accessories for Best Lighting Results." Send your request to Section G1153-77, Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut.

BUY ALL THE BONDS YOU CAN AND KEEP ALL YOU BUY

GENERAL  ELECTRIC

DIMENSIONAL QUALITY CONTROL PRIMER

"Dimensional Quality Control" is the subject of primer published by the Federal Products Corp., 1144 Eddy St., Providence, R. I. To very small extents the dimensions of pieces coming from machines change during the work day. The changes are due to many causes. The principal causes are the increasing temperature of the machine, of the work piece, and of the cutting oils; the wear of tools; and the tendency of the operator to work faster as the day progresses or to work more slowly as he becomes tired. Federal has evolved a method for reducing these changes in dimensions to statistical averages which can be plotted on a chart. The chart is divided by hours of the day and therefore the averages of dimensions for each hour can be seen at a glance.

With this chart the trends of dimensions can be analyzed very easily. One result should be that the over-all averages of dimensions in production runs that are long enough to occupy several days time of the machine can be greatly increased in accuracy with no increase in cost or with actual decrease in cost. Another result could be the decreasing of over-all costs by reducing the highest accuracies aimed at during some hours of the day and bringing the accuracies of all hours more nearly to a uniform level.

The booklet makes these varied factors and the quality control process clear. Standardized chart sheets are available from the company.

INTRODUCE NEW FINISH FOR RUBBER PRODUCTS

New beauty and protection for rubber products is being offered by the makers of Johnson's Wax by rubber finishes that are said to help retard oxidation and sun-checking, thus lengthening rubber's life.

The products are said to keep their new look longer when protected by Johnson's Rubber Finishes; resist dirt, fingerprints, scuffs and scratches when being packed and shipped, and while on display. The new product also acts as a dry lubricant for rubber parts.

The finish can be applied by spraying, dipping or wiping. Drying time is short—generally 15 to 20 minutes, less if heat is used. The finishes are non-flammable. They are resilient to a high degree, and under ordinary conditions resist cracking and scaling.

A folder giving details will be mailed on request to S. C. Johnson & Son, Inc., Racine, Wisconsin.

AIR COMPRESSOR STANDARD TANK MOUNTED

Tank Mounted Air Compressor Standard CS 126-45 has been released by the Division of Trade Standards, National Bureau of Standards. Copies are available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. — price 10¢ per copy.

FOR BETTER GAGING . . . "GO" GREENFIELD

ARE YOU USING

Chromium Plated
THREAD GAGES for EXTRA WEAR?

The longer life of chromium plated gages more than makes up for their high first cost and results in worthwhile net savings.

While "Greenfield" has supplied chromium plated gages for many years, wartime expansion of facilities and research has enabled us to greatly improve our methods and quality. Now we can furnish a vastly superior product including Thread Gages as well as plain gages.

For further information on "Greenfield" chromium plated gages, call your "Greenfield Man" through your local "Greenfield" distributor.



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Among the ASSOCIATIONS

Carolinas-Virginia Fall Meeting

President C. L. Sheldon and Executive Secretary Renard
of National Principal Speakers

The Carolinas-Virginia Purchasing Agents Association opened the fall season with an unusually successful meeting at Sedgefield Inn, Greensboro, N. C., September 28th and 29th. Approximately 75 persons attended the meeting which was featured by excellent addresses, golf and entertainment.

Following a business meeting Friday afternoon, Leroy H. Kise, representing the War Production Board, Atlanta, addressed the open meeting on "W.P.B. and Reconversion." This session was followed by a number of group meetings, as follows: Coal and Fuel Oil, H. D. Waters, chairman; Governmental, Institutional and Educational, Robert King, chairman; Paper and Containers, W. G. Terry, chairman; Textiles, M. K. Thackston, chairman; Utilities, H. E. Wilson, chairman; War Production Board, Leroy H. Kise presiding.

At the banquet, following a social hour, President Charles L. Sheldon of the National Association (purchasing agent for the Hood Rubber Co., Watertown, Mass.) was the principal speaker. Mr. Sheldon delivered an excellent talk on "Today's Purchasing Job." In the course of his address Mr. Sheldon emphasized that new developments will make for profound changes in industry, and declared it absolutely necessary that purchasing agents keep abreast of the new developments in order that they may keep their companies in "a competitive position." He said that the changes imposed new responsibilities upon purchasing agents who will have to sift the "wheat from the chaff" among the new materials, proposed substitutes, and processes in order that they may best serve their companies and the planning, production and sales departments.

Mr. Sheldon declared that the nation's purchasing agents had done an outstanding job in connection with the war program, stating that when "the final accounting is made of the so-called miracle of production of the implements of war, the purchasing agents of the country must be given credit for a magnificent job."

The September 29th morning sessions were featured by a talk on "Surplus Property Disposal" by R. C. Harrington, Supervisor of Sales, Surplus Property Division, R. F. C., Charlotte, N. C.; address of Executive Secretary George Renard of the National Association on the theme "From one P. A. to Another"; and a talk by Vice President Zackey of the National Association on "The M. D.

Pays Dividends." The afternoon was given over to the annual golf tournament, with R. V. Spangler in charge, followed by a golfer's Dutch supper at 7:30 p.m.

National Secretary George Renard in the course of his talk declared that "Management must recognize that purchasing is a specialized field and that it is one of the keystones of successful management of business." He said that many businesses will suffer sharply for lack of recognition of this fact.

Many organizations fail to realize that successful purchasing operations are just as important as well trained sales staffs or well organized planning and production departments, he stated, stressing that all factors in an industrial organization must be considered in relation to each other, and that no single factor actually dominates results.

Reviewing the economic situation he said that the most important thing today is production of commodities that are in big demand, stating that "high production, intelligent price policies, substantial purchasing power and other related factors are necessary to the making of a prosperous America."

Prosperity does not hinge on certain price policies insisted upon by certain business interests, nor upon artificially stimulated wage levels, he declared. "There is but one sound way to bring about stable prosperity. We must produce a sufficient amount of commodities, we must sell them at reasonable prices, and we must keep employment at a satisfactory level. That is the only way we can raise our living standards, and pass on to the public the many benefits of the technological advances that have been stimulated by the war," he said.

Present officers of the Carolinas-Virginia Association are as follows: President, D. S. Burnside, Purchasing Agent, Taylor-Colquitt Co., Spartansburg, S.C.; Vice President, David Lindsay, Purchasing Agent, Johnston Mills Company, Charlotte, N. C.; Secretary-Treasurer, H. E. Kiefer, Jr., Purchasing Agent, Ware Shoals Manufacturing Company, Ware Shoals, S. C.; W. Z. Betts, Division of Purchase and Contract, Raleigh, N. C., is National Director, and W. G. Terry, Purchasing Agent, Old Dominion Box Company, Lynchburg, Va., is Alternate National Director.

The association roster lists 132 members, in addition to six members who are now in the Armed Services.

The regular annual meeting will be held in Charlotte, N. C., at the Charlotte Hotel, December 7th and 8th.

LAST RITES FOR PRIORITIES

*"We're glad 'cause you're dead,
You rascal, you.
The tears that we shed
Are not 'cause we're blue."*

Fittingly attired in top hat and cutaway, and standing before an industrial background appropriately suggestive of a great pipe organ, Purchasing Agent Jerry Watson of the Florida Power Corporation presided at a mock ceremonial in St. Petersburg, Fla., October 1st. In the role of "funeral director" he conducted the last rites and burial of a casket full



Last Rites For Priorities

of rubber stamps that had been used in his office for the past four years in placing and extending priorities on purchase orders. The regulations requiring this procedure were revoked by the War Production Board and Office of War Utilities on that date.

Assisting Mr. Watson in this touching ceremony were "chief mourners" Howard Letzring (left) and John Parramore (right), Assistant Purchasing Agents of Florida Power Corp. The gravestones in the foreground mark the last resting place of Order U-1, under which public utility companies had operated since February 24, 1943, and Utility Order P-46, which was effective from September 17, 1941, until superseded by U-1. The service is apparently being read from the "Allocations and Priorities Guide", which was forthwith consigned to the paper salvage drive following the ceremony. All those present agreed that any tears that were shed were strictly of the "crocodile" variety.

PROFITS OF PURCHASING FLORIDA MEETING

Editor Stuart F. Heinritz of Purchasing Magazine was the principal speaker at the joint meeting of the Florida Purchasing Agents Association and the Southeastern District Council, N.A.P.A.,

(Continued on page 218)

NOW—GET YOUR
FIRST CHOICE
 MATERIALS HANDLING
 EQUIPMENT!



Philco "Thirty" Industrial Truck Storage Battery gives 30% longer life and is identified by its distinctive red connectors.

FOR 50 YEARS A LEADER IN INDUSTRIAL STORAGE BATTERY DEVELOPMENT

Tune in The Radio Hall of Fame, with Paul Whiteman and His Orchestra, Sundays, 6 P. M., EST; The Breakfast Club with Don McNeill, 9:45 A. M., EST, Monday through Friday—ABC (Blue) Network (Coast to Coast).

MODERN ELECTRIC INDUSTRIAL TRUCKS POWERED BY COST-SAVING PHILCO "THIRTY" STORAGE BATTERIES

Now you can get the kind of industrial trucks war experience proved the safest, most flexible and maintenance-free — ELECTRIC TRUCKS! And you can power your trucks with the greatest materials handling development since the fork-lift truck, itself—PHILCO "THIRTY", the Storage Battery with 30% longer life! Plan now for the big demands peace-time production will place on your materials handling equipment. Philco "Thirty" will give your trucks top capacity, *plus* savings in maintenance, depreciation and replacements. Write today for new catalogs giving specifications.

PHILCO CORPORATION • STORAGE BATTERY DIVISION • TRENTON 7, NEW JERSEY

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*Famous for Quality
 the World Over*

BETTER VISIBILITY with Arkwright Tracing Cloths

Ease of tracing and better blueprints result from using Arkwright Tracing Cloths. That's because these cloths have exceptionally high, longer lasting transparency. Special mechanical methods, instead of surface oils that become opaque and brittle with age, make this transparency possible.

Arkwright Cloths are free of pinholes, specks, dirt, stains and other imperfections that detract from its use as a drawing material or lower the quality of reproductions.

Arkwright Tracing Cloths are tough, too. They take erasure after erasure without smudging or wearing through. And re-inking is done without "feathering" or blotting. Countless copies can be made without tearing, fraying or curling of the original.

Give this finer tracing cloth a real test on your drawing board. Free samples gladly furnished. Arkwright Finishing Company, Providence, Rhode Island.

Sold by leading drawing material dealers everywhere.



Arkwright
TRACING CLOTHS
AMERICA'S STANDARD FOR OVER 20 YEARS

(Continued from page 216)

at the Floridan Hotel, Tampa, Florida, October 3rd, 1945.

Mr. Heinritz, whose address appears in this issue of Purchasing, reviewed the progress of group effort and centralized purchasing since the organization movement was started in Boston 40 years ago, the lessons learned and the contribution of organized effort to the welfare of the individual Purchasing Agent, and the responsibilities he must assume in the highly competitive business era that is now commencing.

Among those present at the meeting was H. H. Meehan, formerly Purchasing Agent for the A. B. Dick Company and president of the Chicago Association in 1918. Mr. Meehan made a short talk on the early days of the association. He is now retired and lives at Tampa. Also present at the meeting was the president of the Tampa Shipbuilding Company, who said that the Purchasing Agent was faced with important new responsibilities in view of the many new materials available and the changing postwar plans of industry.

The District Council, District No. 7, met in Tampa in connection with this meeting under the direction of Vice President W. S. Flinn of Chattanooga, with representatives from the Florida, Georgia, Alabama, Chattanooga, Louisville, Memphis and New Orleans associations.

TALK ON ATOMIC BOMB NEW ORLEANS

Dr. Joseph C. Morris, professor of physics, Tulane University, who directed the selection of the picked experts who handled the research and development of the atomic bomb, gave a most interesting and understanding talk on nuclear fission and the intricacies of the atomic bomb, at the regular meeting of the Purchasing Agents Association of New Orleans which was held at the Jung Hotel, October 8th. Dr. Morris has been active in atomic research since 1940, and but recently returned to his post as professor of physics at Tulane.

STUDY YOUR COMPANY VANCOUVER MEETING

O. A. Peterson, Personnel Manager of the British Columbia Electric Railway Company, was guest speaker at the September meeting of the Purchasing Agents Association of British Columbia. Using the theme "Get Acquainted with your Company" Mr. Peterson stated that employees should become acquainted with the history of their company, how and when it started, its founders, its growth, and its policies.

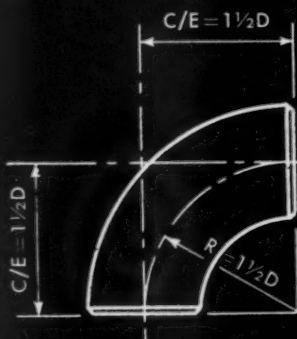
The new association president, Cliff Kirby, Vancouver General Hospital, also addressed the meeting, briefly recounting the tremendous events that have occurred since the last meeting of the association in June, and emphasizing that grave responsibilities lie ahead of all in the months and years to come.

His talk was followed by a general
(Continued on page 222)

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MIDWEST**

OFFERS A COMPLETE SELECTION OF 90° WELDING ELBOWS

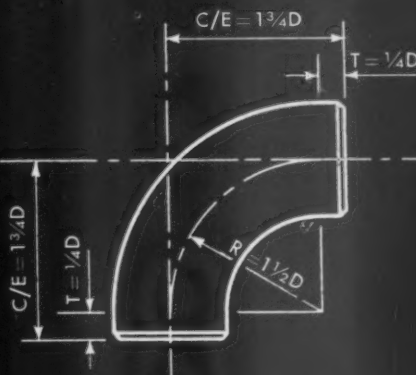
1 LONG RADIUS AMERICAN STANDARD



SIZES: 3/4" TO 12", INCLUSIVE

All dimensions conform to the American Standard for Steel Butt-Welding Fittings ASA B16.9. Unless order specifies otherwise, these "ASA Elbows" will be furnished.

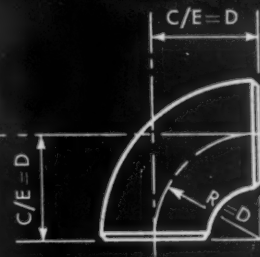
2 LONG RADIUS LONG TANGENT



SIZES: 2" TO 20", INCLUSIVE

Same radius as "ASA Elbows" but with long integral tangent on each end—an exclusive Midwest feature that saves time and pipe, and sometimes eliminates an extra weld.

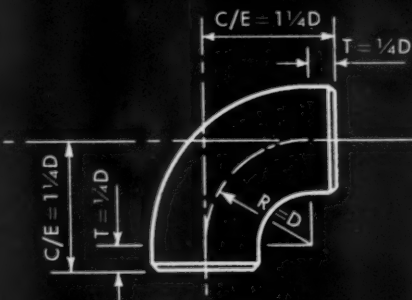
3 SHORT RADIUS



SIZES: 1" TO 12", INCLUSIVE

Where space limitations prevent the use of "ASA Elbows" or Midwest "Long Tangent" Elbows shown at left, these short turn elbows without tangents are recommended.

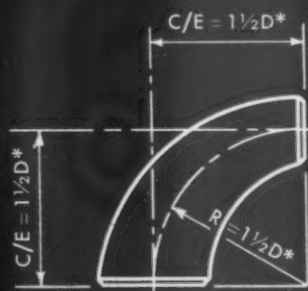
4 SHORT RADIUS LONG TANGENT



SIZES: 14" TO 24", INCLUSIVE

These OD sizes are short radius but have the exclusive Midwest long tangents that save pipe and make it possible to line up the fitting and pipe more quickly and accurately.

5 LONG RADIUS REDUCING



SIZES: 2" TO 12"*, INCLUSIVE

Only Midwest makes the reducing welding elbow which takes the place of a straight elbow and a reducer. It eliminates one weld, cuts installation cost, and reduces pressure drop.

SYMBOLS:

- C/E = Center-to-End Dimension
- D = Normal Pipe Size
- R = Radius
- T = Length of Tangent
- *D = Dimension is Larger Pipe Size

**MIDWEST WELDING FITTINGS
IMPROVE DESIGN AND
REDUCE PIPING COSTS**



MIDWEST

PIPING & SUPPLY CO., Inc.

Main Office: 1450 South Second St.
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Sales Offices: New York 7—30 Church St.
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33—320 Anderson St. • Houston 2—229 Shell
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—Red Rock Bldg. • South Boston 27—426
First St. • Distributors in Many Cities

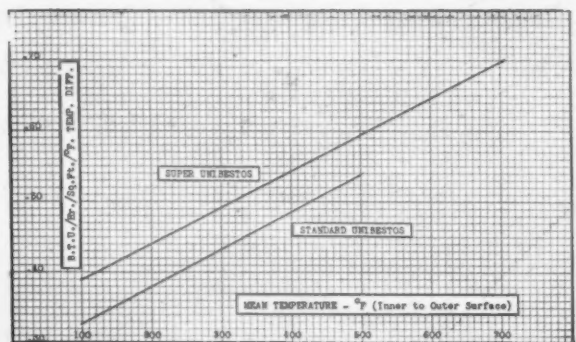
THE GIANT "HEAT"

UNIBESTOS, THE SECTIONAL INSULATION, KEEPS B.T.U.'s IN THEIR PROPER PLACE . . .

Easy-to-apply Unibestos (it's the half-section insulation—just lay one section on the pipe, place the other section under it and—whoosh!—a steel band draws it together firmly, permanently and quickly!) takes the toughest applications in its stride . . . mitres to fit bends and elbows . . . covers flanges and fittings neatly in two simple operations. Unibestos' fibrous nature (it's made of Amosite asbestos) makes for a more perfect seal.

For a step-by-step picturization of the application of Unibestos to steam lines, tanks, nested lines, etc. write for your copy of the magazine "Efficiency"—Bulletin No. 48-974.

These Thermal Conductivity Curves tell the story!



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Union Asbestos & Rubber Co.

LOSS" WON'T STALK THIS PLANT...

UNION ASBESTOS

MEANS PROGRESS IN INSULATION

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Photograph Courtesy of Elwell-Parker Company

Palletizing Changes Square Feet to Cubic Feet!

Practically any company can save time and labor by using pallets, because they turn square feet into cubic feet when moving or storing products. Merchandise can be stacked to the roof if necessary, quickly, economically and safely.

Products can be quickly and easily palletized with Stanley Steel Strapping. Substantial savings can

be made in bracing palletized material in freight cars as compared with loose material or individual packages. Palletized material can be loaded or unloaded from trucks or freight cars by one operator in a fraction of the time formerly taken by two or more men. The Stanley Works, Steel Strapping Division, New Britain, Connecticut.

With Palletizing You:

- ... SAVE SPACE
- ... SAFEGUARD MATERIALS
- ... CUT HANDLING
- ... REDUCE ACCIDENTS
- ... ELIMINATE COSTLY CONTAINERS

STANLEY

**STEEL STRAPPING AND
CAR BANDING SYSTEMS**

MEET ALL FEDERAL STRAPPING SPECIFICATIONS

(Continued from page 218)

discussion of the procedure to be followed with respect to the acquisition of stocks of material, equipment and supplies declared surplus by the Government. Looking to the clarification of this situation, a committee was appointed to check and make a report at the next meeting.

Archie Scott, purchasing agent for the Canadian Fishing Co., and national director, is taking active part in a sales training course sponsored by the Vancouver Board of Trade.

FREQUENCY MODULATION BROADCASTING WESTERN MASS. MEETING

Frequency modulation broadcasting stations will jump from 58 to 600 in the next five years, while the number of regular stations will decrease from 900 to 750 in the same period, W. C. Jaeger, of General Electric company, said at a meeting of the Purchasing Agents' association at Hotel Kimball, Springfield, Mass., September 13.

FM, he said, will obsolete present broadcasting methods, but will not replace it completely, since the radio system now used will be employed to reach rural areas more economically than FM.

PAST PRESIDENTS' NIGHT LOUISVILLE

The Purchasing Agents of Louisville held its first fall business meeting at the Kentucky Hotel on Tuesday, September 18. It was Past Presidents' Night and ten former presidents of the organization were in attendance and letters from several others now located away from Louisville were read.

The program featured a panel discussion on "Reconversion and the Purchasing Department" lead by four past presidents, namely: Calvin Marcus of the Edward H. Marcus Paint Co., Gus Leep of the Adler Manufacturing Co., Lloyd Greenebaum of the American Air Filter Co., and B. Y. Heazlitt of the K & I Terminal RR.

The following new members were formerly introduced at the meeting: C. N. Annawalt of the Charles R. Long Co., Clarence E. Schardein of F. S. Schardein & Sons, and Alfred E. Schiller of the Schiller Hardware Company.

A framed certificate of appreciation was presented to the retiring president Calvin Marcus by W. M. Kerrick, the first president of the Louisville Association and a former Seventh District Vice-president.

The printing of a certificate of membership to be presented to each member of the Association was authorized. This certificate will contain the name of the member and will show his affiliation both with the Louisville Association and the National Association of Purchasing Agents. It will be signed by the president and secretary and will give also the principles and standards of N.A.P.A. It is suggested that the members frame these certificates and hang them in the reception room of their department.

WHY THE PARKER TRIPLE

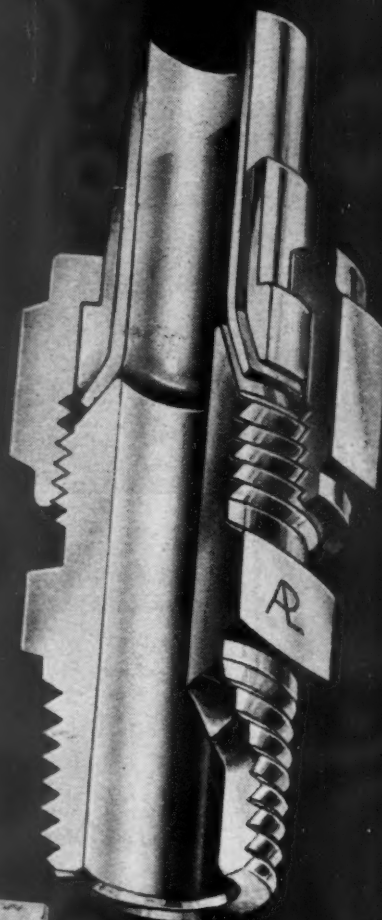
is leak-tight and vibration-proof

These are exclusive and patented Parker features:

- 1 The angle of the flare is scientifically determined, to provide maximum clamping surface, with equalized pressure all around—for a leak-proof connection that stands high pressure.
- 2 Body, nut and sleeve take all the stress and strain from the tubing and flare, and give full protection against the effects of shock and vibration.
- 3 Inside diameter of coupling is uniform with that of tubing—for streamlined flow—no obstructions or pockets to cause turbulence.
- 4 Parts are self-aligning and completely interchangeable—for easy installation or disassembly.

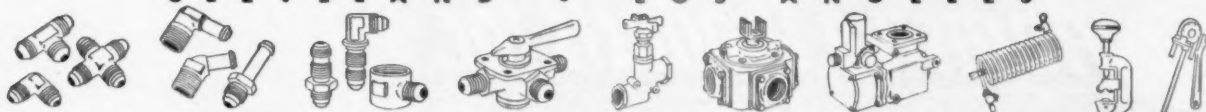
There are the reasons why the design of the Parker Triple Coupling is the universally accepted standard for Army-Navy aircraft—the most exacting of all services—and why they insure perfect performance in all industrial applications.

Send for Catalog 201-C—for complete data on steel, brass, stainless or aluminum couplings— $\frac{1}{8}$ " to $1\frac{1}{2}$ "—standard or heavy weight. Ask your Jobber, or address The Parker Appliance Co., 17325 Euclid Avenue, Cleveland 12, Ohio.



THE PARKER APPLIANCE CO.

CLEVELAND • LOS ANGELES



FLUID POWER PRODUCTS FOR ALL INDUSTRY

WELDISKS "eat" the toughest job, with greater safety, without chipping their "teeth"!



CLOTH
FIBRE
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The secret is a new cement BOND . . . stronger than any yet developed! The "teeth" (the abrasive) can not come loose from the backing under the most severe use . . . result is longer life with greater safety!

Weldisks have the toughest "teeth" in commercial use today—electric furnace treated aluminum oxide, and that spells—faster cutting!

Weldisks have a special, 3-ply backing: 1 layer of fibre, specially treated and pressed for double strength and hardness, to keep Weldisk edges from going "flabby"; 2 layers of heavy cloth, encasing the fibre, to keep the fibre from cracking when bent!

Finally, Weldisks are cured by a new process that ends curling and warping.

Try Weldisks on the toughest job you have. Fill out the coupon below. We'll ship you free samples of the type required!

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Grit.....
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Abrasive Products, Inc.

SOUTH BRAintree 85 MASSACHUSETTS • MAKERS OF JEWEL COATED ABRASIVES

DISCUSS ATOMIC BOMB SPRINGFIELD, OHIO

The September 12th meeting of the Purchasing Agents Association of Springfield, Ohio, was devoted almost entirely to a discussion of post war policy and progress, reconversion production, and the securing of material required for post war production.

At the Association's September 26th meeting, Dr. W. A. Hammond of the Hammond Drierite Company of Xenia, Ohio, presented a well prepared discussion on the origin and development of the atomic bomb. Dr. Hammond is a chemist and physicist of long standing, and his company contributed some of the highly technical equipment used in the atomic bomb plant.

B. F. Downey reports that this meeting proved one of the most intensely interesting ever held by the association. At the completion of his address Dr. Hammond answered questions for an hour and a half, and after the meeting was adjourned, members crowded around him asking further questions. Dr. Hammond is a member of the association.

Several Springfield Purchasing Agents attended the Sixth District Council meeting which was held in Columbus, Ohio, October 5th and 6th.

1 1 1

"BUSINESS MAN SPEAKS UP" CHICAGO MEETING

Ralph W. Carney, vice president and sales manager of the Coleman Lamp & Stove Company, Wichita, Kan., who is acclaimed as one of the country's most successful sales managers, was the principal speaker at the September 13th meeting of the Purchasing Agents Association of Chicago, at the Sherman Hotel. Mr. Carney's subject was "A Business Man Speaks Up." Mr. Coleman built an aggressive sales organization from scratch, starting in 1917 with four men whom he had trained according to his own plans in demonstrating and selling the Coleman lamps and lanterns, until he had a force of 60 salesmen. He is an "out of the field" sales manager, and is reported to spend two-thirds of his time contacting customers. During the war his company was devoted practically 100 per cent to war work. Company executives aside from purchasing agents and their assistants, buyers and purchasing department employees attended the meeting.

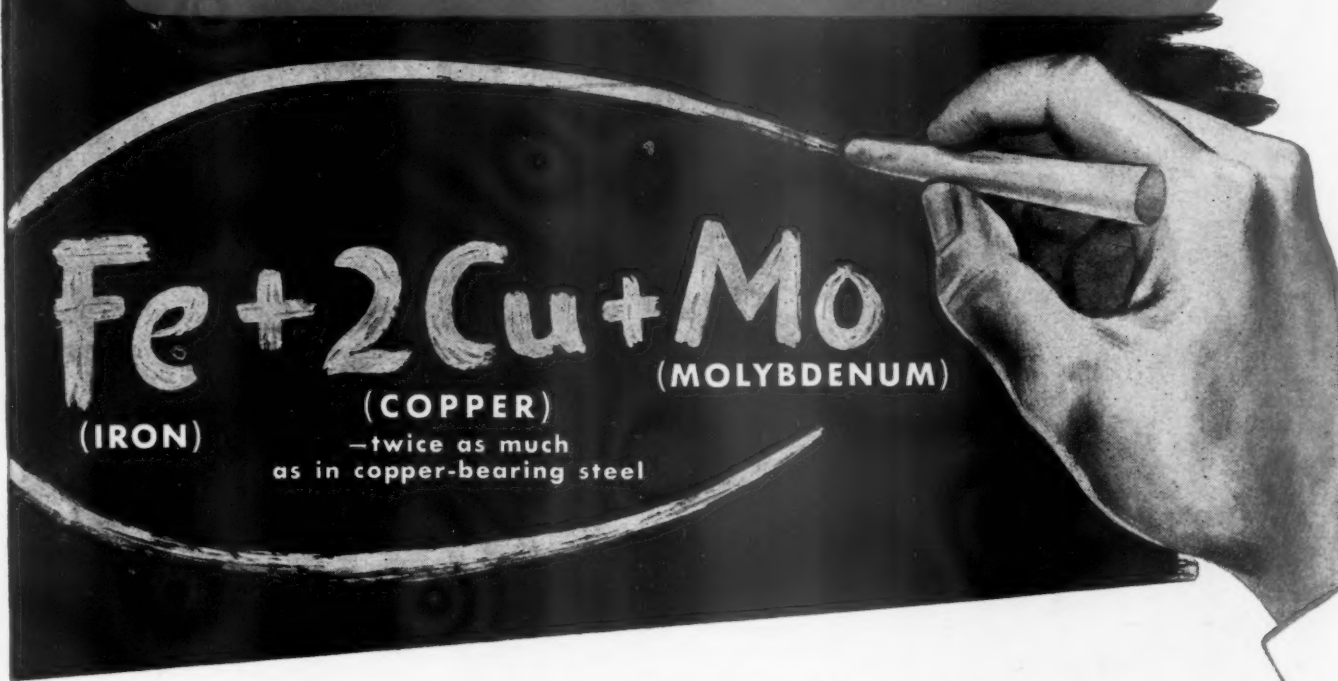
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DISCUSS PLASTICS AT FORT WAYNE

At the September meeting of the Purchasing Agents Association of Fort Wayne, Ind., held at the Chamber of Commerce on the 17th, W. S. Black of the E. I. du Pont de Nemours & Company's Plastics Division gave an interesting talk on DuPont Plastics, illustrating his talk with various samples of plastics in their manufactured form. Harold Berry, national director, also gave a short talk on purchasing in the postwar international era.

(Associations continued on page 226)

FORMULA FOR LONGER SHEET METAL LIFE



Only Toncan Iron has All Three to provide the Highest Rust-Resistance of All Ferrous Materials in its Price Class

There's *no* other material like Toncan Iron. It isn't a steel. It is *not only* an iron—but an *alloyed* iron. That's why it has the highest rust-resistance of all ferrous materials in its price class.

Toncan is made from highly refined open-hearth iron. To this iron is alloyed copper—*twice as much* as found in copper-bearing steel—and molybdenum to make the copper

impart its highest rust-resistance.


In Toncan Iron, rust-resistance is not only a surface quality, it goes *all through the metal*, uniformly. And its effectiveness is not reduced by any type of fabrication.

Another outstanding quality of Toncan Iron for more than 35 years is its *high ductility*. Because it's made from commercially-pure iron and specially processed for

working qualities, it is easy to fabricate by *any* method.

Translate these facts into job performance and they mean lower construction costs and longer service under rust conditions. That's what you get when you specify Toncan Iron.

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TONCAN COPPER **IRON**
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—for those parts of your product and for those sheet metal applications in your plant where low-cost resistance to rust is needed.

Screw Machine Products

U.S. AUTOMATIC
CORPORATION
AMHERST ★ OHIO



Chicago Detroit New York

TRANSPORTATION PURCHASING DENVER MEETING

C. T. Carlsten, Purchasing Agent of the Denver Tramway Company, was the headliner for the program for September meeting of the Denver Association of Purchasing Agents Thursday evening September 13th at the Albany Hotel. His topic was Transportation Purchasing. He told the group about the system and procedure used in his department for the procurement of equipment and supplies needed to keep a metropolitan street railway utility operating to adequately serve the public.

Mr. Carlsten closed with an observation concerning the courteous treatment of salesmen and other callers at the purchasing department: "One uses consideration and courtesy in his contacts not necessarily to reciprocate such attributes in others but because one believes himself to be a gentleman."

This was the first meeting of the season and the new President, L. R. (Jack) Kendrick of Kendrick-Bellamy Company, presided. Mr. Kendrick sketched briefly the outlook ahead for industry and commerce in the Rocky Mountain Region and painted an optimistic picture of the near future.

Commodity reports were presented on (non-existent) lumber by T. Matt Collier of Lumber Dealers Inc., and on food items by Wm. F. Edwards of the Merchants Biscuit Company.

A colored film on Trout, from Egg to Creel, was shown by Dr. C. E. Hagie, Publicity Director for the Colorado State Game and Fish Department. A program committee was appointed for the year and new members were introduced.

LOS ANGELES COMMITTEE CHAIRMEN FOR 1945-46

Following are the committees of the Purchasing Agents Association of Los Angeles, Calif., and their respective chairmen for the 1945-46 association year:

Membership, J. W. Hughes, County of Los Angeles.

Educational, Robert L. Grube, Stephens-Adamson Mfg. Co.

Public Relations and CED Committee, Al R. Lama, Arrowhead and Puritas Waters, Inc.

Acquaintance and Reception Committee, Fred V. Keenan, Keenan Pipe & Supply Co.

Plants Visit Committee, Chas. A. School, Pacific Coast Borax Co.

Publicity Committee, F. F. Hood, Security Engineering Co., Inc.

National Affairs Committee, Al B. Tietjen, Southern Welding & Mfg. Co.

Noon Luncheon Committee, Virgil D. Waters, Utility Trailer Mfg. Co.

Badge Committee, C. S. Quigley, Foster & Kleiser Co.

Service Men's Committee, Al J. Smith, Fibreboard Products, Inc.

Oil Company Buyers' Committee, H. C. Drake, Belridge Oil Co.

Governmental Buyers' Committee, Verne O. Gehringer, County of San Diego.

Aircraft Buyers' Committee, J. L. Wells, Lockheed Aircraft Corp.

Aircraft Parts Buyers' Committee, Paul A. Coleson, Kinner Motors Inc.

Attendance Committee, Robert W. McCament, Caminol Company.

Food Industry Buyers Committee, Richard F. Lutz, Golden State Co. Ltd.

Associate Members' Committee, H. J. Olympius, Shell Oil Co., Inc.

Music Committee, Gordon E. Radebaugh, Scriven & Quinn, Inc.

Golf Committee, S. E. Riberg, Ducommun Metals & Supply Co.

Courtesy Committee, Ronald C. Griffin, Consolidated Rock Products Co.

Bowling Committee, Alcuin Willenbring, Western Industrial Engr. Co.

Program Committee, L. T. Bleasdale, Zellerbach Paper Co.

Publication Committee, E. W. Beck, General Petroleum Corp.

PURCHASING FORUM AT BOSTON UNIVERSITY

The New England Purchasing Agents Association, in cooperation with Boston University College of Business Administration, will conduct an advanced seminar course in purchasing problems this fall and winter, using the new problem series developed by the N.A.P.A. Educational Committee. F. Albert Hayes of American Hide & Leather Co., Boston, will serve as general chairman for the sessions, and individual discussion sessions will be led by a distinguished panel of practical purchasing men including: Ralph D. Berry of Davol Rubber Co., Providence; G. P. Brockway of American Optical Co., Southbridge, Mass.; Donald G. Clark of Gulf Oil Co., Pittsburgh; George J. Cronin, Commonwealth of Massachusetts, Boston; Julian G. Davies of N. Slater Co., Toronto; Prof. Howard T. Lewis of Harvard Graduate School of Business Administration; William T. Roach of Eastman Kodak Co., Rochester; George E. Price, Jr., of Goodyear Tire & Rubber Co., Akron; Fred G. Space of Seymour Mfg. Co., Seymour, Conn.; and Robert C. Swanton of Winchester Repeating Arms Co., New Haven.

DISCUSS SURPLUS DISPOSAL WASHINGTON, D. C.

A. H. Graham, assistant manager of the Richmond, Va. Agency of Reconstruction Finance Corporation, who is directly in charge of surplus disposal for the Richmond Region of R. F. C., led a discussion on "Surplus" at the October 9th meeting of the Purchasing Agents Association of Washington, D. C. at the Mayflower Hotel. The regular dinner meeting was preceded by an open forum conducted by Clifton Mack, director, Procurement Division, Treasury Department, on the papers submitted by members of the local association in the contest sponsored by the National association on the subject of "Purchasing Department's Reconversion and Postwar Responsibilities."

(Associations Continued on page 229)

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— and Accuracy means Rapid and Economical Manufacture

The choice of Brown & Sharpe Tools by over three generations of skilled users attests their high accuracy and fine qualities. Such advantages, expressed in results, mean good work, accurately sized and produced fast. Catalog sent on request. Brown & Sharpe Mfg. Co., Providence 1, R. I., U. S. A.



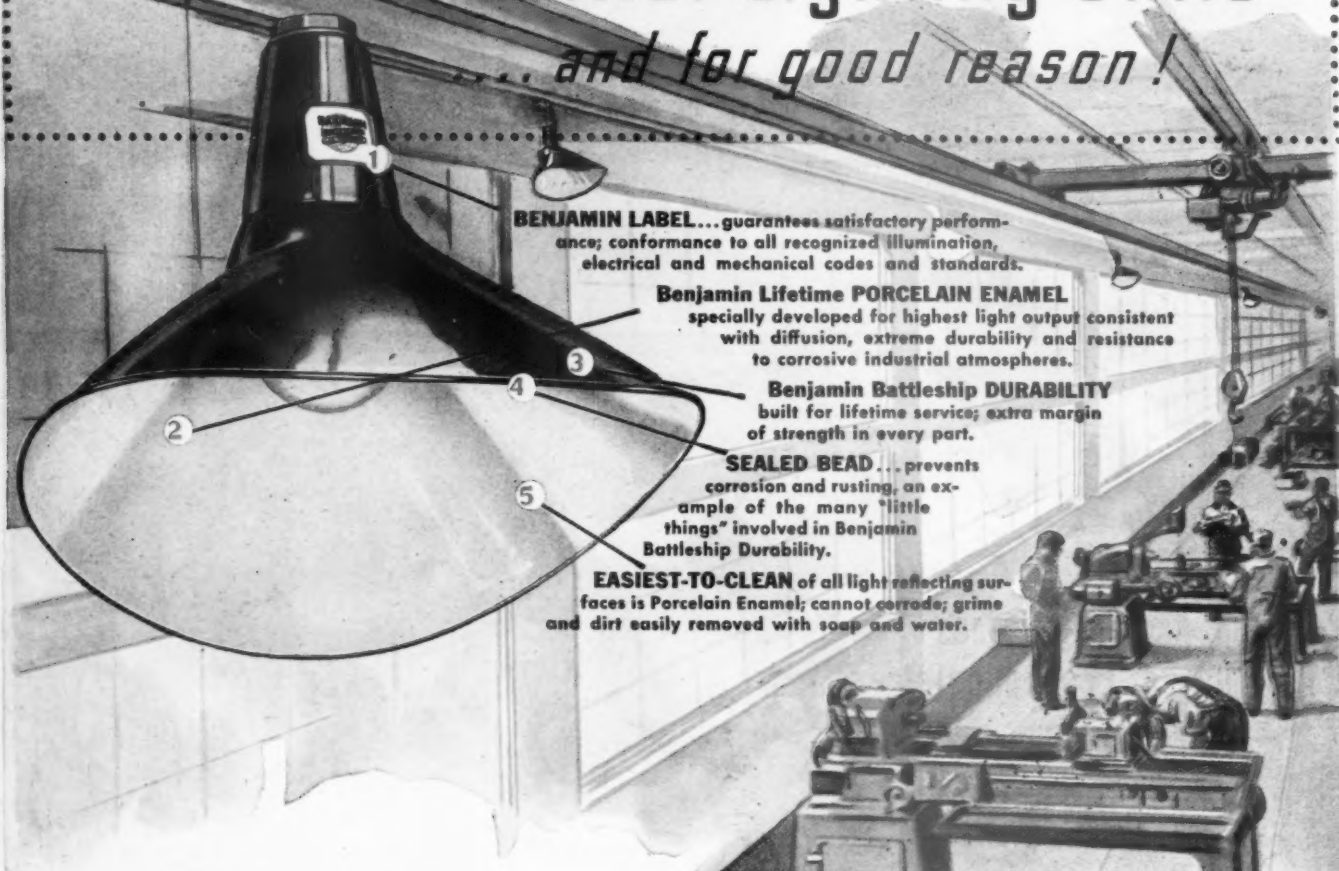
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through the Distributor*



BROWN & SHARPE TOOLS

One of the Most Popular of all Industrial Lighting Units

... and for good reason!



BENJAMIN LABEL... guarantees satisfactory performance; conformance to all recognized illumination, electrical and mechanical codes and standards.

Benjamin Lifetime PORCELAIN ENAMEL

specially developed for highest light output consistent with diffusion, extreme durability and resistance to corrosive industrial atmospheres.

Benjamin Battleship DURABILITY

built for lifetime service; extra margin of strength in every part.

SEALED BEAD... prevents

corrosion and rusting, an example of the many "little things" involved in Benjamin Battleship Durability.

EASIEST-TO-CLEAN of all light reflecting surfaces is Porcelain Enamel; cannot corrode; grime and dirt easily removed with soap and water.

Benjamin Elliptical Angle Reflectors

Your Best Solution to Many Lighting Problems!
A Lifetime of Economical, Efficient and Trouble-free Service!

Thousands of industrial plants have found in the Benjamin Elliptical Angle Unit a most satisfactory and economical solution to certain special lighting problems quite commonly found in Industry. For this unit is especially designed for the lighting of many locations where overhead obstructions make overhead illumination difficult or unsatisfactory...

for the lighting of locations where high ceilings may require special units for adequate illumination of the vertical surfaces... and for the localized lighting of many vertical areas where fairly large areas are involved, etc.

For complete details on these units (available in a wide range of sizes from 75 watt to 750-1500 watt), write for free Data Bulletin.

BENJAMIN ELECTRIC MFG. CO., DEPT. Y, DES PLAINES, ILLINOIS

Specify-
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TRADE MARK

Elliptical Angle

PORCELAIN ENAMEL LIGHTING UNITS

Distributed Exclusively through Electrical Wholesalers

RUSSIA AND POSTWAR WORLD

"What About Russia in the Postwar World" was subject of address by Bert G. Mitchell, lecturer and member of the faculty of Washington Technical Institute (Seattle Y.M.C.A.) in charge of Social Sciences, at the October 16th meeting of the Purchasing Agents Association of Washington at Washington Athletic Club, Seattle, Wash. Also, Sgt. Melton A. English, returned war prisoner, spoke on "King County War Chest."

General Discussions Chairman Allen Fox, purchasing agent, Puget Sound Power & Light Co., conducted a forum discussion on the topic "Salesmen Wanted?" in which the following purchasing agents participated: Frank A. Smith, Carnation-Albers Co., Carl C. Muller, A. M. Castle & Co.; Jack A. Vance Westinghouse Electric Supply Co., and Stuart C. Fisk, North Coast Electric Co.

Preceding the dinner meeting, Russell Wetherell, chairman of the association's Educational Committee, presided at an Educational Forum, the topic being "Reconversion Pricing Set-up." Discussion leaders were Irving A. Hoff, District Director, O.P.A., and John Sholley, price attorney for O.P.A.

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N. W. PENNA. ASSOCIATION OPENS FALL MEETINGS

The following new officers presided at the first fall meeting of the Purchasing Agents Association of Northwestern Pennsylvania held at Oil City, Pa., on September 6th:

President, E. C. Walker, Kendall Refining Co., Bradford, Pa.; vice president, H. W. Ledebur, Hammond Iron Works, Warren, Pa.; secretary, A. E. Wrhen, Sylvania Electric Products, Inc., Warren, Pa.; treasurer, D. F. Manion, Jr., Manion Steel Barrel Co., Rouseville, Pa. The association holds its regular meetings the first Thursday of each month.

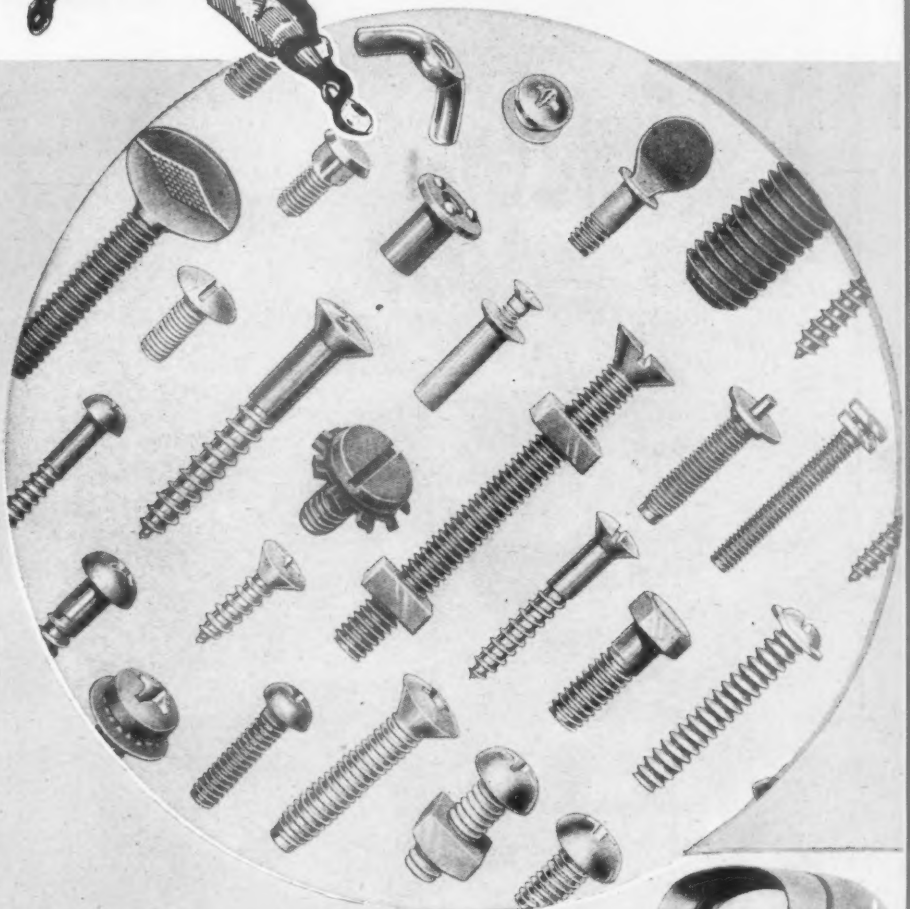
Publicity Chairman Ned Johnson states that a fine steak dinner was enjoyed before the meeting got under way. Taking part in the regular commodities discussion were H. W. Ledebur who gave a good report on the steel situation; H. Kaness, purchasing agent, Knox Glass Associates, Inc., Knox, Pa., who lead a discussion on paper, fibre board cartons and waste paper salvage; and J. Oswell of the Raymond Manufacturing Co., Corry, Pa., who reviewed the major regulations now governing priorities, and explained in some detail the purpose and application of the new AAA, MM and CC ratings.

Principal speaker at the October 4th meeting of the association was William Hug of the Smaller War Plants Corporation, Erie, Pa., who discussed the subject of excess and surplus equipment and materials. He explained the best procedure to follow in locating merchandise of interest.

P. L. Gedeon, Universal Gyclops Steel Corp., Titusville, Pa., made a report in

(Continued on page 232)

We'll Tackle Any Fastening Problem!



In your present production, or planned change-over, are you confronted with fastening difficulties?

Give us the details. We'll tackle any fastening problem, and solve it to your complete satisfaction!

Correcting fastening faults is a large part of our business. We maintain specially trained staffs in our Research Laboratories and Engineering Department that are constantly devising special purpose fastenings in addition to analyzing and recommending corrections in faulty design, materials, heat-treating or other conditions of the assembly parts which cause fastening difficulties. Send us complete information about the problems confronting you. We will recommend the most efficient solution.



To obtain the greatest possible precision Jones & Lamson comparators supplement micrometers throughout our product and inspecting departments. These precision instruments are used to magnify thread form, tools and special products 100 times actual size . . . to make cuts, diameters and angles of screw and bolt heads exact to specifications.

All fastenings furnished with HOLTITE-Phillips' Recessed Head or Slotted Head

CONTINENTAL

SCREW CO.

New Bedford, Mass. U.S.A.



...for **SMOOTHER CONVERSION** to
Civilian Production



**LYON
SURVEYS**
Cover

(1) Planning storage layouts that provide for maximum use of a minimum inventory, save time and floor space; (2) Organizing tool cribs to make possible more productive hours from every available die and small tool; (3) Selecting shop containers of the most efficient type and size for fast, safe handling of materials in production.

A Lyon Survey may be put to work immediately for faster handling of a vital war job. And it can be used when quick reconversion becomes a big factor in speeding up essential civilian production . . . in organizing for winning post-war markets, etc. . . . Lyon Survey Service is offered without obligation. Write us for full details.

WHAT ABOUT POST-WAR?

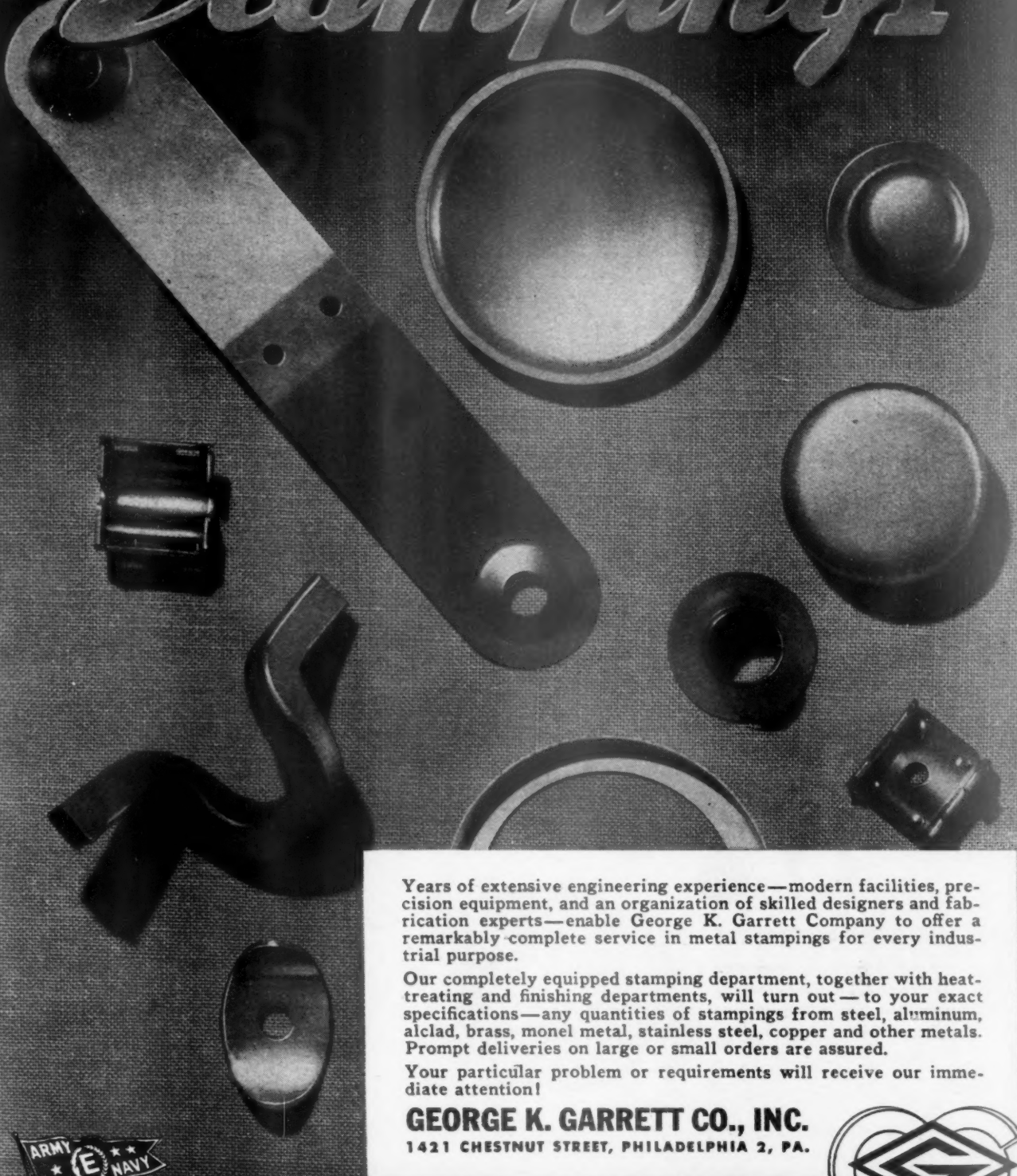
Do your post-war products include sheet metal or aluminum? Check Lyon's manufacturing and designing facilities.

LYON METAL PRODUCTS, INCORPORATED

General Offices: 1133 Monroe Ave., Aurora, Ill.

Branches and Dealers in All Principal Cities

DIAMOND *Stampings*



Years of extensive engineering experience—modern facilities, precision equipment, and an organization of skilled designers and fabrication experts—enable George K. Garrett Company to offer a remarkably complete service in metal stampings for every industrial purpose.

Our completely equipped stamping department, together with heat-treating and finishing departments, will turn out—to your exact specifications—any quantities of stampings from steel, aluminum, alclad, brass, monel metal, stainless steel, copper and other metals. Prompt deliveries on large or small orders are assured.

Your particular problem or requirements will receive our immediate attention!

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**you, too,
can take a
short cut**

THOMAS PRE-COATED

For many companies, Thomas coated cold rolled strip steel reduces operations. These special finishes eliminate part or all of the plating operations in your plant.

DURING PRODUCTION

Thomas coatings provide die lubrication and increase die life. These finishes are rust resisting. Best of all, they often permit increases in production.

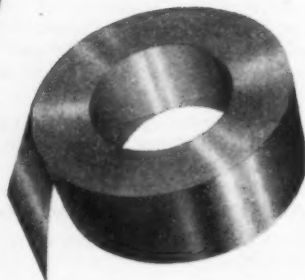
IN YOUR PRODUCT

Thomas coatings provide a uniform coating on inside and outside of complicated parts which are difficult to plate. They are used as an ultimate finish and as a base for further plating.



WRITE FOR LITERATURE

Kindly write your request on your company letterhead stating your title. This will help us to direct cold rolled strip steel data directly to you.



ELECTRO-COATED ZINC, COPPER, NICKEL AND BRASS... HOT DIPPED TIN AND SOLDER... LACQUER COATED IN COLORS... UNCOATED PRECISION STRIP, CARBON AND ALLOY SPECIALTIES

THE THOMAS STEEL CO. • WARREN, O.
COLD ROLLED STRIP STEEL SPECIALISTS

(Continued from page 229)

his capacity as alternate National Director. He emphasized the importance of renewed interest in association activities and better attendance.

D. F. Manion, Jr., Manion Steel Barrel Co., Oil City, Pa., presented a paper on sheet metal. A. W. Slinger The Pennzoil Co., Oil City, Pa., reviewed the fuel oil situation and W. J. Scott, Wolf's Head Oil Refining Co., Oil City, and L. R. Forker, Quaker State Oil Refining Co., Oil City, also spoke on oil.

H. W. Ledebur, vice president, presided at the meeting.

STUDY HOME INDUSTRIES SPRINGFIELD, OHIO

The regular meeting of the Purchasing Agents Association of Springfield, Ohio, on October 10th was devoted to association activities and a detailed report of the Sixth District Council meeting held in Columbus on October 6th. National Chairman Applegate reported on the Columbus meeting, stating that the meeting attendance record of the Springfield association is still at the top of the list.

In order that the membership may become better acquainted with the industries in Springfield, the board has adopted a plan of having at least two members give short talks at meetings on their respective companies. This policy was started at the October 10 meeting when B. F. Downey spoke of the origin and development of the Yost Superior Company and Mr. Groeber gave an interesting talk about the Patton Manufacturing Company.

An interesting feature of the meeting was a talk by Henry Holschue who recently returned from a prison camp in Germany, on his experiences both interesting and distressing, as a prisoner.

DISCUSS INDUSTRIAL SAFETY BALTIMORE MEETING

Edward H. Burhorst, safety director of The Glenn L. Martin Co., lead a panel discussion on the "Safety Factor in Purchasing" at the October 17th meeting of the Purchasing Agents Association of Baltimore, at the Lord Baltimore Hotel. Other members of the panel were George E. Turner, safety supervisor, Bethlehem Shipbuilding Co., Inc., and Joseph R. Lubber, Jr., field representative of The Baltimore Safety Council.

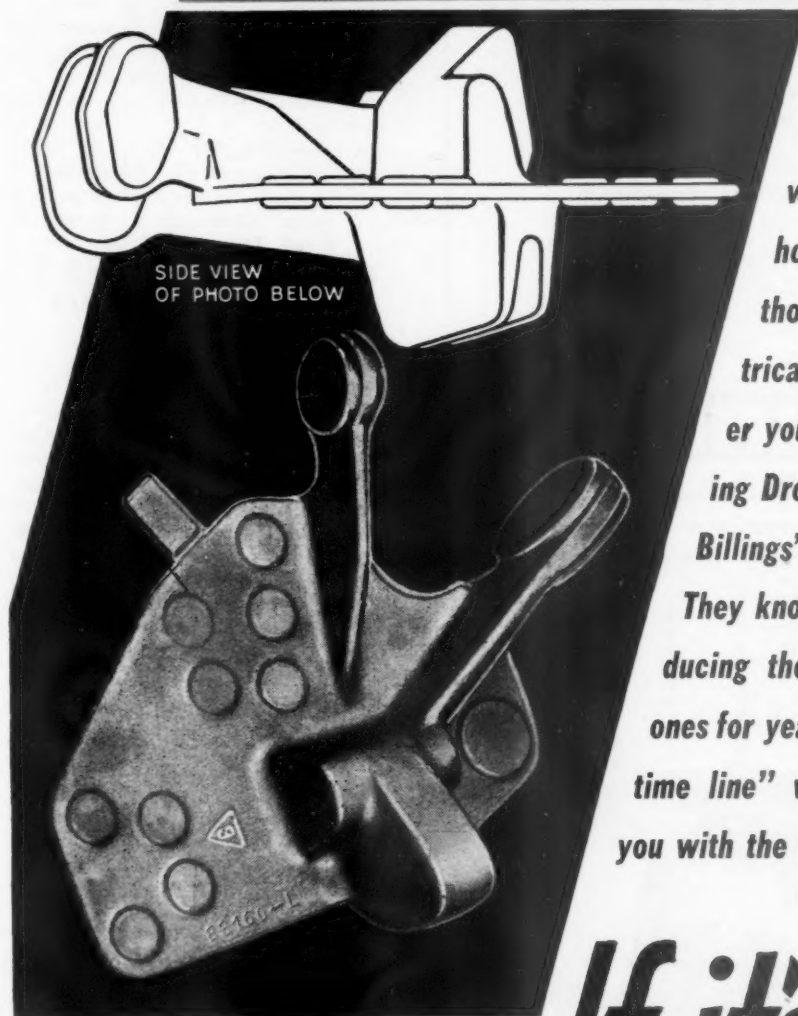
FRED G. SPACE SPEAKS AT RHODE ISLAND MEETING

Fred G. Space, Purchasing Agent, Seymour Manufacturing Company and affiliated companies, Seymour, Conn., was the principal speaker at the September 24th meeting of the Rhode Island Purchasing Agents Association held at the Narragansett Hotel, Providence. Mr. Space is a past president of the Purchasing Agents Association of Connecticut, and a past vice president of the N.A.P.A. The following applications for membership were approved by the board of di-

(Continued on page 234)

Billings

FORGINGS



SIDE VIEW
OF PHOTO BELOW

Looks like a "tough one" doesn't it? It was but Billings produced it! Notice how far metal had to be moved to fill those arms and bosses, imagine the intricacies of die locks — but, why bother you with the technicalities of making Drop Forgings? That's our job. Let Billings' forging engineers do it for you. They know forgings! We've been producing the easy ones and the tough ones for years. . . . In that new "peace-time line" why not let Billings help you with the forged parts?



WRITE OUR SPECIAL FORGINGS DIVISION

If it's a Forging- See Billings

RENDERING A SERVICE

Our Special Forgings Division can aid you in properly designing the forged parts you are planning or to design them for you. Their knowledge is available. Write Billings' Special Forgings Division.

IF IT'S A FORGING

THE BILLINGS & SPENCER CO.
MAIN OFFICE AND PLANT
HARTFORD, CONN. U. S. A.

Conveyor Magic



FILCO Easy-Ride Conveyors eliminate wasteful handling and offer extra space for other vital purposes. Easy-Ride Conveyor "Magic" spells larger profits for you through greatly increased production movement.

FLEXIBILITY Engineered Feature of EASY-RIDE

This modern gravity conveyor is both portable and adjustable to suit your specific needs at any moment. Scientifically designed to handle boxes, cases and cartons quickly and efficiently.

For your FILTERING needs use FILCO filter presses; and "Germ Free" filter paper, cloth, felt, and asbestos pads. For Storage and Mixing use FILCO stainless steel, and glasslined tanks.



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Pacific Mutual Door Co.



National Distributors

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BALTIMORE 31, MD.

LOS ANGELES 21, CAL.

WRITE US FOR PRICE LIST AND GRADE USE GUIDE

(Continued from page 232)

rectors: Walter G. Barney, Kennecott Wire & Cable Co.; Harold F. Holt, Liberty Tool & Gage Works; Earle A. Hover, Fram Corporation; Douglas T. Lakey, George F. Berkander, Inc., and Henry Wood, Crown Worsted Mills, Inc.

1 1 1

FUTURE OF INDUSTRIAL POWER ST. LOUIS MEETING

C. B. Stainback, manager, Industrial Department, Westinghouse Electric Corporation, spoke on the "Future of Industrial Power" at the October 16th meeting of the Purchasing Agents Association of St. Louis, held at the Hotel Coronado, St. Louis. He illustrated his talk with colored slides to clarify the application of radio frequencies in dielectric and inductive heating—a phase of electronics.

Under the direction of L. A. Dahlheimer, chairman of the Entertainment Committee, the association is laying plans for its annual Christmas party at the Statler Hotel December 15th.

1 1 1

UTAH ASSOCIATION MARKS SILVER ANNIVERSARY

Next year, 1946, will mark the 25th year of active participation in the N.A. P.A. by the Utah Purchasing Agents Association, and plans are now being made for suitable commemoration ceremonies. Several of the association's past presidents were recently awarded Service Certificates in token of the part they took in fostering the organization. At a luncheon meeting on September 27th, Prof. L. R. McKay, Modern Languages, University of Utah, discussed the effects of Nazi teachings on German youth.

1 1 1

INDUSTRIES TO COME DETROIT MEETING

Dr. William J. Hale, noted chemist, and consultant for Dow Chemical Co., spoke on "The Shape of Industries to Come" at the October 18th meeting of the Purchasing Agents Assn. of Detroit.

1 1 1

NON-FERROUS METALS ROCHESTER MEETING

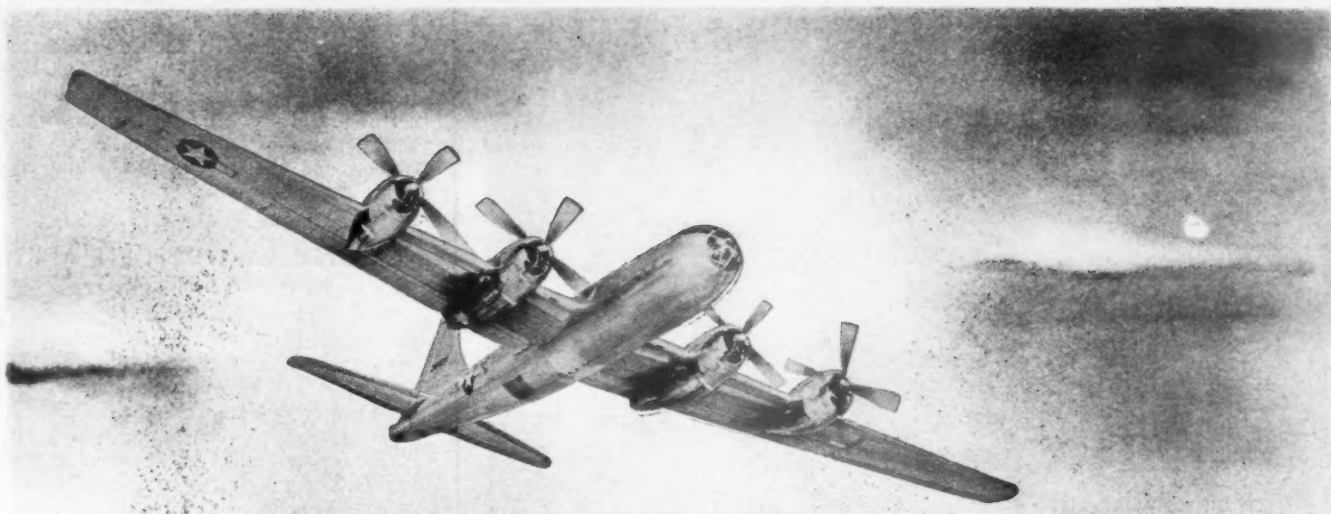
Dr. Richard A. Wilkins, vice president in charge of research and development for the Revere Brass & Copper Co., Inc., spoke on "The Relative Position of Non-Ferrous Metals in the Postwar Era," at the October 31st meeting of the Purchasing Agents Association of Rochester, at the Rochester Club. The Rochester Association as set December 20th as the date for its annual Christmas party.

1 1 1

EASTERN NEW YORK STARTS PLANT VISITS

Thanks to the efforts of Harry Erlicher, Purchasing Agent for the General Electric Co., Schenectady, N. Y., and national director, Purchasing Agents Association of Eastern New York, members of that association had the privilege

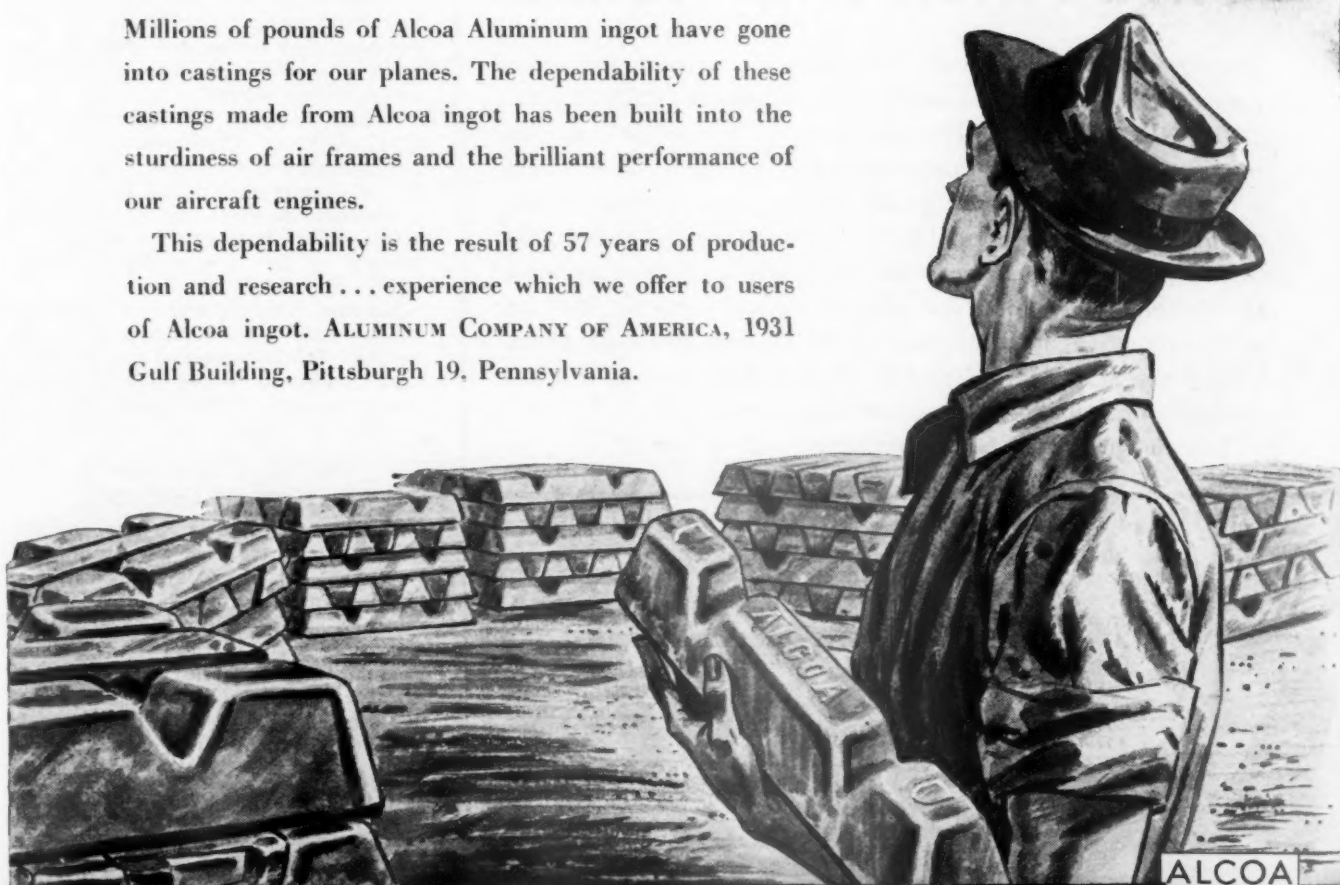
(Continued on page 236)



Ingot that flies to work

Millions of pounds of Alcoa Aluminum ingot have gone into castings for our planes. The dependability of these castings made from Alcoa ingot has been built into the sturdiness of air frames and the brilliant performance of our aircraft engines.

This dependability is the result of 57 years of production and research . . . experience which we offer to users of Alcoa ingot. ALUMINUM COMPANY OF AMERICA, 1931 Gulf Building, Pittsburgh 19, Pennsylvania.



ALCOA ALUMINUM





Less fatigue means PRODUCTION WITH A SMILE

Modern aircraft construction exemplifies the strength and versatility of screw fasteners — *and the importance of CENTERED DRIVING with Corbin-Phillips Screws*. Thousands of screws must be turned up accurately and firmly, in many places where a ratchet or power driver could not be used. Repeated hand driving — even from normal positions — is fatiguing at best, but this fatigue can be minimized with Corbin-Phillips Screws *because the driver never slips!* The specially formed hardened steel bit wedges down tightly into the Corbin-Phillips Recessed Head, holding the screw straight while locating and driving, and enabling the operator to turn it up as tight as required.

Less fatigue means better production *with a smile!*

CORBIN-PHILLIPS AND CORBIN SLOTTED



Wood Screws, Machine Screws, Hardened Sheet Metal Screws, Self-Tapping Machine Screws, Stove Bolts. Aircraft Screws to government specifications . . .

Also — Steel Drive Screws, Lag Screws, Cap Screws, Set Screws, Hex Semi-Finished Nuts, Machine Screw Nuts, Escutcheon Pins and Chain.

THE CORBIN SCREW CORPORATION
The American Hardware Corp., Successor
NEW BRITAIN, CONN. Warehouses: New York, Chicago



Screws Nuts Chain



(Continued from page 234)

of visiting General Electric's research laboratory at Schenectady on October 18th. This event was followed by a dinner at the Mohawk Golf Club, following which there was a lively commodity discussion and the showing of a moving picture on electronics.

GOVERNMENT DISPOSAL AT NEW YORK MEETING

"The Present Status of Government Surplus Disposal" was the subject of discussion at the October 16th Forum Meeting of the Purchasing Agents Association of New York held at the Builders Exchange Club. The speaker was John P. Sullivan, Chief of the Surplus Property Division, New York Agency, RFC. At the dinner meeting which followed, Max Hill, National Broadcasting Company commentator and former associated press chief in Tokyo spoke on "America's future in Asia."

One of the interesting features of the meeting was the presentation of sealed envelopes to Secretary "Jep" Leonard and his assistant, Miss Katherine Seibert, by W. M. James, charter member who has been active in the New York Association for 31 years, in token of their 25 years of loyal and efficient service. When Mr. Leonard became executive secretary in October 1920 the association had 320 members, and it now has 615 members, and during this time he has had 21 "bosses" in the form of incoming association presidents.

Among the guests for the evening were F. C. Boggess, Purchasing Agent for the Johns-Manville Company, Waukegan, Ill., who was president of the Chicago Association in 1924; and A. C. Davis, manufacturers representative, who was a prisoner of the Japs in Santo Tomas, Manila, P.I., for 37 months.

Six new members and two applicants for membership were introduced at the meeting. It was announced that the New York Association would hold its annual Christmas party on December 18th.

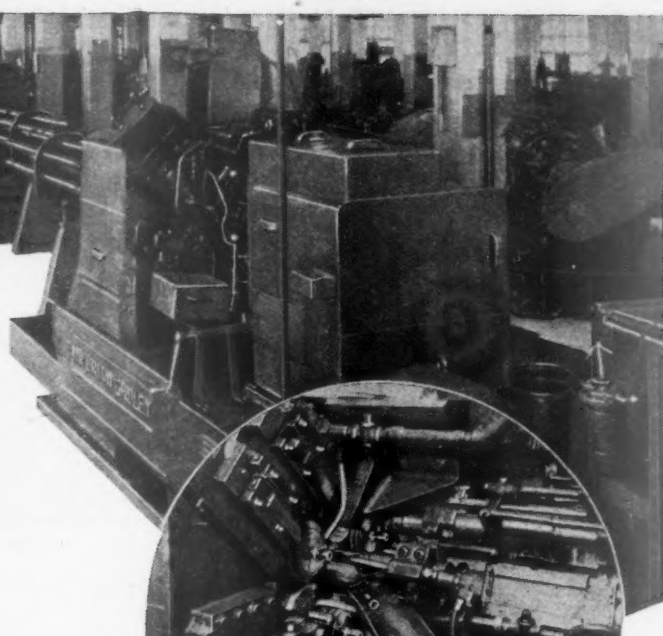
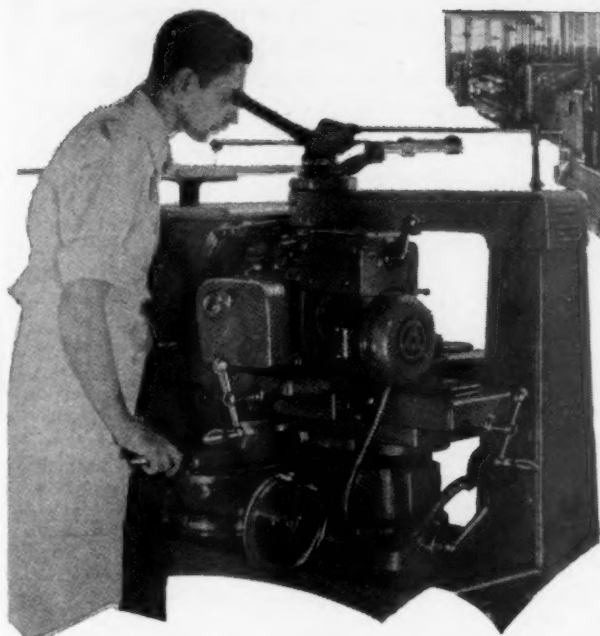
UTILITIES GROUP PLANS MEETING IN CHICAGO

Officers of the public Utility Buyers' Group of the National Association of Purchasing Agents are laying plans for a midwinter meeting to be held in Chicago February 4th and 5th, 1946, subject to lifting of restrictions on travel. The program will be carried on under the direction of Russell C. Wenz, purchasing agent for the Philadelphia Company of Pittsburgh, who is chairman of the group.

LARGE ATTENDANCE AT LEHIGH VALLEY MEETING

The first Fall meeting of the Purchasing Agents Association of the Lehigh valley was held at Northampton Country Club, September 25th, with about 100 in attendance. During the afternoon a number of the members and guests played golf, the tourney being in charge of W. T. Dougherty of Bethlehem.

(Continued on page 238)



Looking for Precision ...and Getting It!

*to give you
Mechanics Hand Tools
that make money—*

PERFECT FIT in a New Britain Hand Tool leaves no room for a slip that might smash knuckles, chew a stud or generally gum up a job. That sweet fit between New Britain wrench parts as well as perfect fit "on the nut" is no accident . . . it starts way back in the manufacturing process when the form tools to machine wrench sockets are ground with microscopic precision. New Britain looks for and gets that high standard of precision every step of the way. Even the big, versatile Automatic Screw Machines on which these famous sockets are formed are built by this company.

There's one RIGHT SIZE for every maintenance tool. New Britain Wrench

Above—a battery of New Britain's own Gridley Automatic Screw Machines. In the circle—a close-up of the business end of one of these Automatics forming wrench sockets. To the left is shown a Periscopic Grinder. The operator sees an image greatly enlarged. Grinding to microscopic, pinpoint accuracy on this exclusive New Britain device produces form tools for use on the Automatics that machine Wrench Sockets with hairsplitting precision.

Sockets are made that RIGHT SIZE by New Britain's own six spindle Automatics. These amazingly precise machines have made the phase "Permanent Accuracy" a reality wherever they are in service throughout American industry.

Bear these facts in mind the next time you're buying tools . . . ask your Mill Supply Jobber to show you the New Britain Hand Tool Line. When you try one you'll want more of them—they're that good. The New Britain Machine Co., New Britain, Conn.

The complete New Britain Line for Automotive, Aircraft, General Maintenance and Production Needs is sold by leading Jobbers.

New Britain



The Army-Navy "E" Pennant, with stars, flies over New Britain's plants, signifying outstanding production of machine tools, aircraft engine parts and propellers.

GREATER STRENGTH • BETTER FIT **HAND TOOLS**

BETTER DELIVERIES NOW!

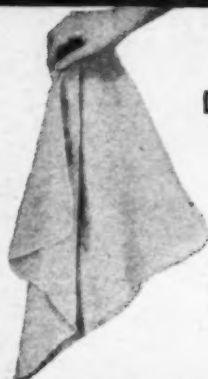
We are catching up on our flood of orders. Perhaps by the time you read this we will again be in a position to fill current orders promptly. We thank you for your forbearance.



Absorbs and Washes

**LIKE A
SPONGE**

**Used WET,
DAMP or DRY**



NO OTHER CLOTH LIKE IT!

Cleans, Dries and Polishes

**LIKE A
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Owing to **AMAZING** AMOUNT of WATER it HOLDS, "DUET" can be used as a Sponge . . . or wrung out tightly, like a Chamois.

Ideal for HEAVY DUTY work in industry. **CANNOT UNRAVEL.** Each thread locked by a hidden stitch. **EXTRA DENSE**, long-wearing surface. **SAVES MONEY.** Used dry its dense surface picks up dust like a magnet.

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AMERICAN SPONGE & CHAMOIS CO., Inc.
47 ANN STREET, NEW YORK 7
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Producers of
AMSCO CHAMOIS and MERMAID SPONGES
EST. 1869 **DEMAND BY BRAND**

(Continued from page 236)

The business meeting was in charge of C. O. Richards, president of the association, who announced that the association would hold its annual dance at the Americus Hotel in Allentown, Pa., on Friday, December 7th.

Guest speaker at the dinner meeting was Lt. W. A. Tydeman, Jr., USNR, who gave an interesting talk on his service experiences. J. H. Barr and W. A. Tydeman, Sr., had charge of the meeting arrangements.

STORY OF SYNTHETIC RUBBER MEMPHIS MEETING

The "Story of Synthetic Rubber" was dramatized in a sound movie acted out by Hollywood actors, before the Memphis Association of Purchasing Agents, September 19, at a dinner-meeting held at Hotel Gayoso. Phil Antoine, Goodyear Tire & Rubber Co. presented the movie. Preston Allen, Orgill Bros., program chairman, introduced the speaker.

Larry Smith, president of the association, who is being transferred to the St. Louis office of Sefton Fibre Can Co., as purchasing agent, turned the chair over to Max Wells, J. E. Dilworth Co., vice-president, who will serve the president's unexpired term.

W. E. Rier, national director for the seventh District was elected as representative for the Memphis organization for the contemplated one-day meeting and Informa-show of the Seventh District.

CHARLES J. OGG HEADS STEAMSHIP GROUP

Charles J. Ogg, purchasing agent of Marine Transport Lines, Inc., has been elected chairman of the American Steamship Purchasing Agents Group succeeding Charles O. Minot of A. H. Bull & Company. Mr. Minot continues as a member of the Board.

O. C. Webster of Lykes Bros. was elected vice-chairman and J. H. Leonard was appointed secretary. Executive Committee members are Jacob DeBoer, Barber S. S. Lines; Edward A. Waldron, American Export S. S. Company; H. A. Hartland, Agwilines; C. J. Nicholas, American President Lines.

The steamship group is affiliated with the Purchasing Agents Association of New York. It comprises sixty companies which own or operate the greater bulk of the tonnage of the American Merchant Marine.

ALL NATIONS' NIGHT CLEVELAND

"All Nations' Night" held at the Cleveland Hotel, September 20th, under the auspices of the Purchasing Agents Association of Cleveland, was featured by an address by Dr. Galen Starr Ross, president of Capital College, Columbus, Ohio, who spoke on "World Affairs." Guests of honor at the meeting were Mayor Thomas E. Burke and the foreign counsels of Cleveland.

WHAT'S NEW IN PURCHASING MONTREAL MEETING

Editor Stuart F. Heinritz was the principal speaker at the October 16th meeting of the Purchasing Agents Association of Montreal, at the Mount Royal Hotel Montreal. His subject was "What's New in Purchasing."

Chairman J. H. Barnes of the Plants Visits Committee had arranged for a visit at brass and iron foundries at Lachine, and thence to the company's main plant.

J. S. M. Hayes, purchasing agent for Shipping Containers Limited, and national director for the association led a community discussion on "Corrugated Boxes" at meeting held under the auspices of the Research Committee of which Wm. E. Leeson is chairman. This session preceded the dinner meeting.

EDITOR HEINRITZ SPEAKS AT ELMIRA MEETING

Editor Stuart F. Heinritz of Purchasing Magazine spoke on the subject "What's New in Purchasing" at the September 27th meeting of the Purchasing Agents Association of Elmira, held at the Mark Twain Hotel.

PRESIDENT SHELDON OF NAPA HEADS FOR WEST COAST

President Charles L. Sheldon of the National Association of Purchasing Agents — purchasing agent for the Hood Rubber Co., Watertown, Mass., will visit Western Associations on a rather "tight" schedule during November, as follows:

November 12th, Portland; 13th, Seattle, Wash. for Manufacturers and Distributors Night; 15th, San Francisco; 16th, District Council meeting at San Francisco; 19th, Los Angeles; 21st, Salt Lake City; and on the 23rd, Denver.

CONNECTICUT HOLDS GOLF- DINNER MEETING

The September meeting of the Purchasing Agents Association of Connecticut was held at the Chippinnee Country Club, Bristol, Conn., on the 25th. The afternoon was given over to golf, and at the dinner meeting Fred Lux, vice president of the Lux Clock Company, Waterbury, who made a survey of Germany on behalf of the clock industry, told an interesting story of his observations and showed moving pictures he had taken in Germany. His subject was "A Special Mission to Germany."

William McMorro, assistant manager of Reconstruction Finance Corporation for the Boston District, spoke on "Distribution of Surplus Materials" at the October 23rd meeting of the association, which was held at Oakdale Tavern, Wallingford, Conn.

November 27th the association will meet in Seymour, Conn., to enjoy an old fashion turkey dinner with all the trimmings, at the Congregational church. National Association Secretary George Renard will give one of his "on the ball" talks "From One P. A. to Another."

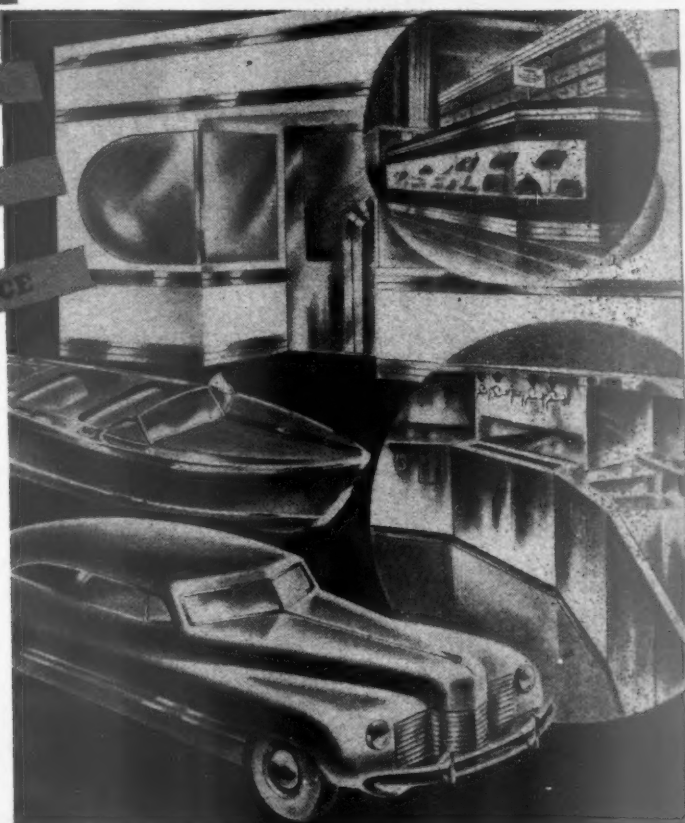
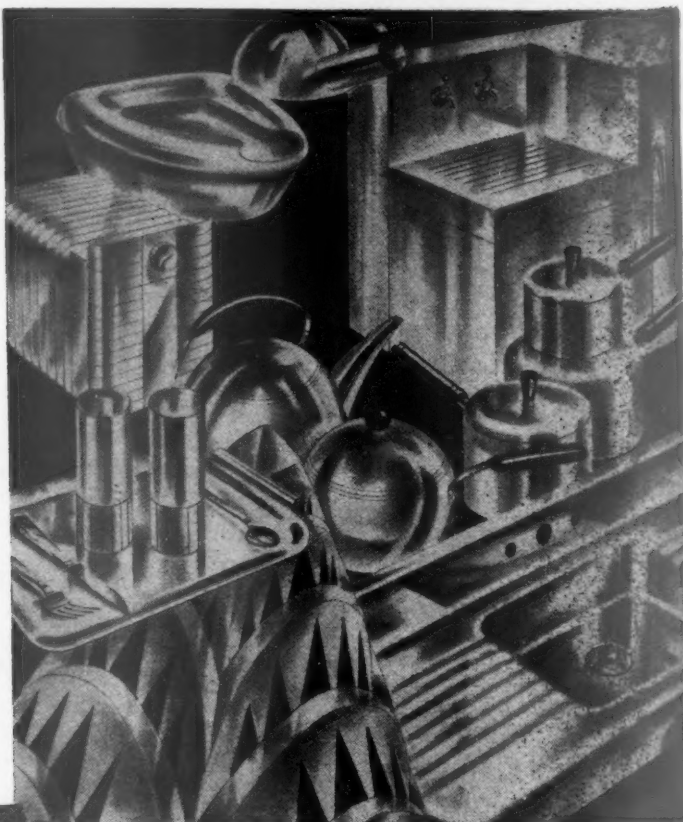
(Associations continued on page 358)

Superior Stainless Strip Steel

provides the matchless
combination of



in easy to fabricate coils
of long lengths . . . always
accurate in metallurgical analysis,
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UP TO \$1,000,000 CREDIT
WHY?
HIGH QUALITY PRODUCTS

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WE PRODUCED THE FIRST NON-GREASE CARBON
WE PRODUCED THE FIRST SELF-INKING RIBBON

WE now give the world the wonderful complete line of New Process carbon paper; FOUR weights and SEVEN finishes in EACH weight in four brands. This carbon gives perfect, sharp, leg-

ible prints, extreme manifolding and wears like the proverbial IRON. This carbon greatly helps efficiency and simplifies purchasing, no office should be without it.

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FOREIGN BRANCHES: Buenos Aires, Cordoba, Rosario, Tucuman, Argentine; Adelaide, Brisbane, Melbourne, Perth, Sydney, Australia; Havana, Cuba. Carbon Paper Supply Co., London, Birmingham, Edinburgh, Glasgow, Manchester, Newcastle, Leeds, Leicester, Liverpool, England; and Belfast, Ireland. Export Dept. Rochester 1, N. Y., U. S. A. Cable Address: "Keelox Rochesterny."

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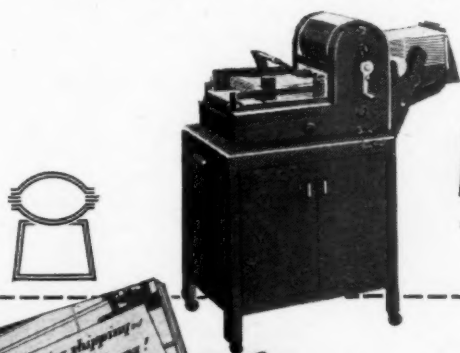
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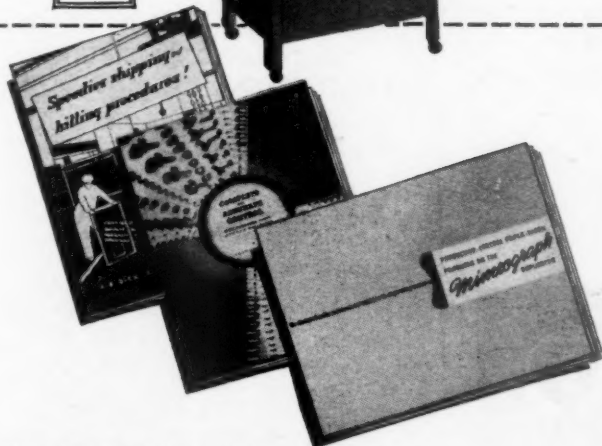
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Your business records are WORTH KEEPING

Keep them on paper
of proved resistance to time
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Key accounting records—legal and financial documents—insurance records—reports—executive correspondence—records such as these are too important to be trusted to all-purpose paper of doubtful quality or stamina. They deserve a foundation of paper worthy of the responsibility for carrying valuable records—paper made and tested specifically for the purpose—WESTON paper.

Records on Weston Cotton Fibre Content Record, Ledger, Index and Bond Papers stand up over years of active use. All you need to do to assure *your* records lasting serviceability is to establish this sound policy:

*If it's worth keeping,
keep it on a WESTON paper*

BYRON WESTON COMPANY, Dalton, Massachusetts

Weston

Makers of Papers
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ELECTRIC TYPEWRITER WITH PROPORTIONAL SPACING

Holding especial interest for the executive departments of business, an all electric writing machine known as the Electromatic Proportional Spacing Machine, being introduced by Electromatic Typewriters Incorporated, subsidiary of International Business Machines, Rochester, New York, features typewritten work of improved appearance and greater legibility together with remarkable ease of operation and greater speed and accuracy. These qualities emanate from the fact



Electricity does the work

that "electricity does the work", and in addition, the mechanism of the machine automatically allows the proper amount of space for each printed character according to its width, varying from two to five units of 1/32 inch each.

Pages typed with the machine are characterized by uniformity of tone and the type uniformity of a good printing job, and they do not show vertical lines formed by white space between letters produced by conventional typewriter spacing.

The machine is available with special styled type faces, either 12 point Book or 12 point Fine Line type. The machine has standard keyboard arrangement in a feather-touch level speed keyboard. Another feature of interest is a word expander button by means of which words may be automatically expanded between characters, say for word emphasis.

The type impression can be controlled to meet the needs of the work being done, whether writing correspondence or making stencils, photographic masters, metal or paper plates. Printed matter describing the machine is available.

1 1 1

CONTAINER CORPORATION EMPLOYS COLOR TECHNOLOGIST

Walter C. Granville, color technologist, has joined the staff of the color laboratories division of the Container Corporation of America, Chicago, Ill. In addition to evolving solutions for the technical color problems connected with carton printing and the manufacture of coated board, he will be associated with Director Egbert Jacobson of the Department of Design on the application and promotion of the Color Harmony Manual covering the Ostwald color system. For the past eight years Mr. Granville has been associated with Interchemical Corporation Research Laboratories in New York.

EYES IN HER FINGERS



TOUCH, and touch alone, operates the Underwood Sundstrand Adding Machine.

Result—time saved...fatigue reduced...more work...money saved for you.

The keys of the simple, "10-key keyboard" are so grouped that "touch" operation becomes the easy and natural way to work. Even a totally inexperienced operator learns in a few days.

Underwood Sundstrand Adding Machines are made in models to fit all problems, from simple listings, involving addition and subtraction, to simultaneous accumulation of group and grand totals.

This leaves the eyes completely free to concentrate on the worksheets, while the fingers speed the numbers into the machine.

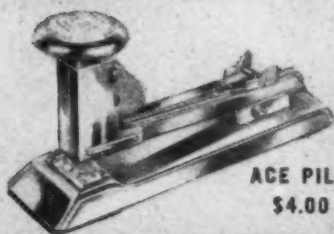
Thousands of offices, banks, factories and stores have made this profitable investment in Underwood Sundstrand efficiency. It will pay you, too!

Save the Seconds and You Save the Day!

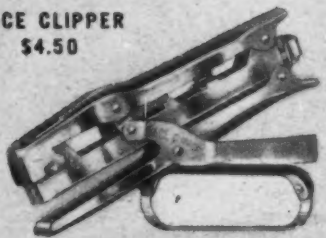
Underwood Corporation... One Park Avenue, New York 16, N.Y.

Control Those Post War Papers

WITH
ACE
STAPLING EQUIPMENT



ACE CLIPPER
\$4.50



Cancellation of war contracts, cut-backs, inventories, audits, taxes, Government reports . . . all mean more paper work and an unprecedented demand for Ace Stapling Equipment. This efficient, speedy, time saving method securely fastens up to 40 sheets of average weight paper; preserves and keeps them intact; can be referred to easily, quickly; prevents misplacing valuable papers; and saves filing space. Ace Staplers are built with watchlike precision, from the finest materials, by skilled workmen.

SOLD THROUGH DEALERS EXCLUSIVELY

ACE FASTENER CORPORATION
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ACE *The WORLD'S FINEST*
Stapling Machines
FOR EVERY PURSE AND PURPOSE

Form 6273 Rev. 2-20-50 6-44

THE PHILIP CAREY MFG. CO.
WARNER WORK ORDER

WARNER PRINTING DIVISION

No. 1164

Deliver To _____ Date Ordered _____

Date Invoiced _____

Quantity	Form No.

DATE REC'D	PRICE O. K.	MATERIAL O. K.	CHARGE TO ACCT

REQUESTED BY _____ APPROVED BY _____ PURCH. DEPT. O. K. _____

FORMS DATA

- Purpose of form (describe briefly)
- Is this a new form or reprint? If new, attach sketch
- Does the reprint require changes? If yes, explain briefly
- File life schedule of data to be shown on form
- Method of reproduction to be used on form:
Print ☐ Mimeograph ☐ Type ☐ Ditto ☐ Other ☐ (Explain)
- Paper stock required: Weight _____ Color _____
- Dimensions _____ Print on 1 side ☐ 2 sides ☐
- Type style _____ Type size _____
- Forms in:
Individual ☐ Total sheets
Sets ☐ Per set Total sets
Pads ☐ Per pad Total pads
- Margins: Binding side _____ Opening side _____ Top _____ Bottom _____
- Ruling comments
- Binding: For loose leaf or post binder? _____ No. holes _____ Binding side _____ Spacing _____
- Collating order
- Carbons

This form is used as requisition, order and invoice for inter-office forms and advertising literature produced by the Philip Carey Manufacturing Company's Warner Printing Division.

Form 998 Revised 3-28-54 1-44

THE PHILIP CAREY MFG. CO.
RECORD OF MATERIALS RETURNED or SOLD

Firm Name _____ 194 _____

Return Order No.	Shipped To	Kind of Material	Quantity	Price	F. O. B.	Shipping Date	Factory Charge	Amount Credit	Date Paid
		Actual Size 8-3/8" x 10-3/4"							

Record form covering returnable containers, bags, drums, etc., and the sale of scrap and surplus materials, used in purchasing department of Philip Carey Manufacturing Company.

(Continued from page 242)

against an extended but definite requirement. These forms are on page 260.

Three Form Letters

Also, there are "Returned Material Request" and "Purchase Record" forms supplied by Purchasing Agent A. N.

Phillips of the Schwitzer-Cummins Company, Indianapolis, Indiana, accompanied by three standard multigraphed letter forms which are self-explanatory. These letters are on standard company letter-heads and each bears a form number.

These letter forms include tracer

(Continued on page 248)

INTRODUCING THE NEW "NUMER-RING"

BY

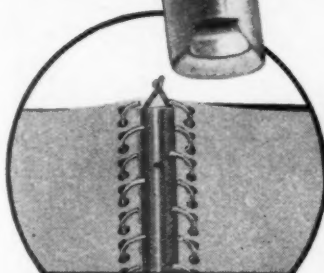


with all the advantages of ring binding . . . plus new economy and new features.

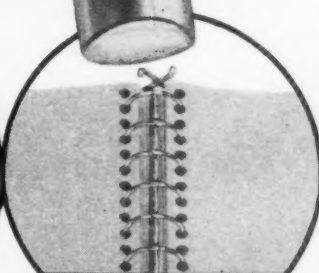
Here is a new type of loose leaf binding with closely spaced rings for extra protection against sheets tearing out. It is strong, but light in weight . . . opens, closes, and handles easily . . . grips and holds sheets of all kinds securely. Great for today's thin paper!

The applications of "NUMER-RING" in days to come will be many and varied . . . catalogs, price lists, data books, manuals, visible, ringbooks, pay-roll books, and a host of others. Meanwhile it is becoming available in stock covers and can be "tailor-made" in an assortment of styles and materials to meet your specifications.

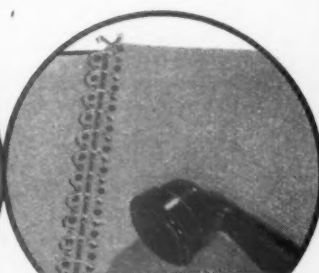
ASK YOUR STATIONER



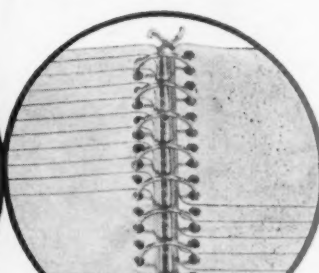
Staggered rings make sheets turn without friction and simplify insertions. Equipped with an easy-opening device.



Closely spaced rings for extra protection against sheets tearing out. Contents lie flat when binder is open.



Neat in appearance — light in weight. Price comparable to least expensive loose leaf mechanisms.



Ring arrangement allows sheets to be assembled with visible margins. Light gauge rings with accurately matched joints.

NATIONAL BLANK BOOK COMPANY

HOLYOKE, MASSACHUSETTS

NEW YORK

CHICAGO

BOSTON

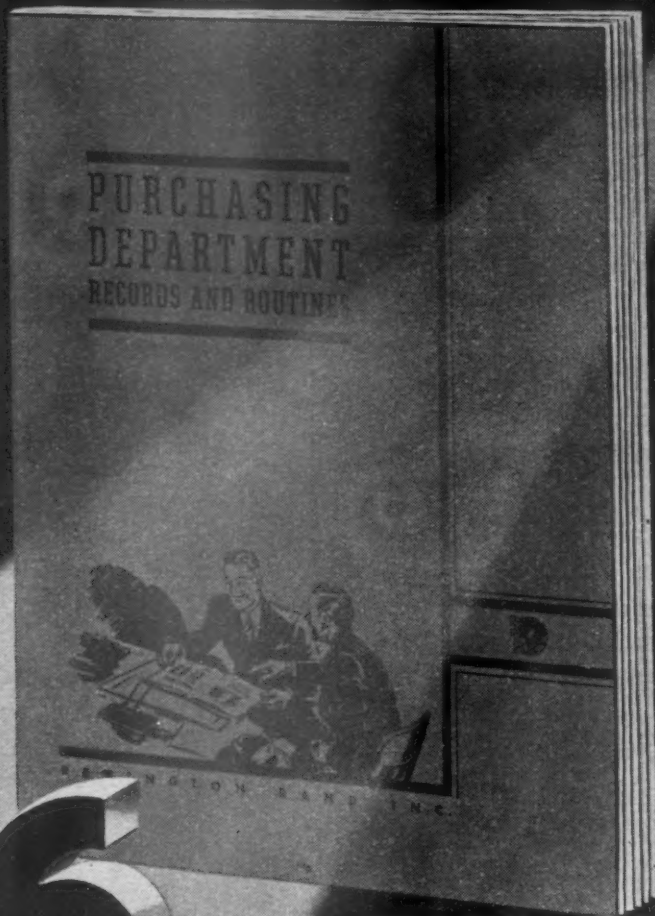
SAN FRANCISCO

SIMPLIFY

buying records
and routines

-GET SET FOR

46



New products . . . new methods of fabrication . . . new materials to be procured . . . new orders to "keep down costs!"

The spotlight is on purchasing today in ways it never was before. Routines developed to meet war conditions are now being streamlined for the new era of competition. Records are being consolidated and redesigned to knock out waste motion and provide the "Fact-Power" that adds up to easier, faster, surer procedures.

Moves being made

in this direction by hundreds of leading organizations are the basis of this important 64-page study. It breaks down purchasing into its components . . . shows how each is being woven into the whole setup for the most effective action with the least effort. "Purchasing Department Records and Routines" is offered to you today to facilitate the readjustments needed for tomorrow.

Write or phone nearest Branch Office for a copy, or pin the coupon to your letterhead.

**CHECK YOUR
SET-UP . . . IMPROVE**
**PRICE ANALYSIS
COMMODITY RECORDS
ORDER FOLLOW-UP
CATALOG FILE
CONTRACT RECORDS
RECORD PROTECTION
FILING SYSTEMS**

- ? How can visible "automatic" requisition-purchase forms be used most effectively?
- ? Do your records contain all the data needed to expedite handling of rush requisitions?
- ? Would any of the five accepted procurement follow-up methods simplify your operation?
- ? What is the easiest way to keep purchases by commodity classification within budget figures?
- ? Can you analyze your position on "make and hold" orders at a glance?

"PURCHASING DEPARTMENT RECORDS AND ROUTINES" brings you the answers to these and scores of other *timely* questions.

**SEND COUPON
TODAY**

Kindly send me a copy of "Purchasing Department Records and Routines."

Name

Address

City

SYSTEMS DIVISION
REMINGTON RAND
315 Fourth Ave., New York 10, N. Y.

COPYRIGHT REMINGTON RAND INC.

**THERE'S SOMETHING
ABOUT A BURROUGHS
RIBBON THAT MAKES
MY TYPING NEATER**



**I KNOW THE ANSWER.
FINE FABRICS AND
FINE INKS GO INTO
BURROUGHS RIBBONS**

**You get the best in
BURROUGHS
CARBON PAPER
ROLL PAPER
RIBBONS**

Burroughs' intimate knowledge of business machines in action established the exacting specifications of quality which characterize Burroughs supplies for all types and makes of business machines. The next time you need ribbons, carbon paper or roll paper, call your local Burroughs office. Ask for details on Burroughs Discount Purchase Plans which provide savings of 10% to 40% on your quantity purchases.

Burroughs
SUPPLIES FOR
BUSINESS MACHINES
BURROUGHS ADDING MACHINE COMPANY

(Forms Forum Continued from page 248)

Gentlemen:

On _____ we received a shipment from
your company via _____
consisting of _____ our part _____ covered
by our order number _____

Your packing slip number _____ dated _____
specifies _____ pieces.

It will be impossible for us to honor your
invoice covering this shipment until the above
shortage is reconciled.

For our mutual benefit it is necessary this
discrepancy be taken care of immediately. Unless
we hear from you in the near future regarding the
above difference, it will be necessary we issue a
debit memo. to offset the shortage indicated.

Yours very truly,

SCHWITZER-CUMMINS COMPANY

Above: Form letter covering shortage

Below: Transmitting new drawing of part

Gentlemen:

We are enclosing our latest drawing of
Part _____, showing change and ask
that you fill all present and future orders
covering this part accordingly.

Will you kindly acknowledge receipt of this
changed print.

Yours very truly

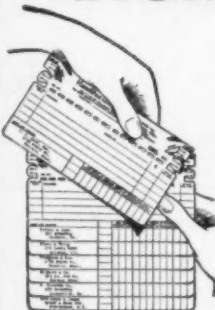
SCHWITZER-CUMMINS COMPANY

Purchasing Agent

for purchase order acknowledgment; one for transmitting new drawing of part
advising supplier of shortage; and a third being made by a supplier.

(Forms Forum Continued on page 260)

Visible Record ^(500 Cards) \$345 Complete



Sheets of Cards

25 Card-Sheets Show FACTS on 500 Cards

Easy	Use Cards only. Join together. File sheets of Cards on edge in correspondence folders	Cost
Quick	—Half inch visible margin. Send order.	Sales
Flexible	500 Blank Cards 6x4 inch \$3.45—10x4 \$5.30	Stock
Durable	500 Printed Cards 6x4 inch \$6.70—10x4 \$8.50	Ruled
Portable	Use Visible Indexing, Color Signaling, Visible	Credit
Compact	Tabulation of vital information. Ten years	Payroll
Low Cost	national use. Send no money. Satisfaction	Purchase
Convenient	Guaranteed. Write for Catalog	Prospects
Saves Time		Collection

Handifax
VISIBLE CARD RECORDS

Ross-Gould Co., 303 N. Tenth
ST. LOUIS

For the man who
PAPER
holds the Bag



This is always true for anyone who ever bought anything...the only thing you buy is satisfaction. If you don't buy that, you stand there holding the bag.

That is why men who buy paper for their organizations...paper for letterheads, envelopes, ledgers, or duplicator machines, stick like glue to the Eastern line of fine papers. For Eastern, in turn, sticks like glue to the qualities that give satisfaction, qualities that never leave buyers holding the bag. Send for our new, free portfolio showing specimens of Eastern Fine Papers for Business.

*Atlantic
Bond*

MADE BY
EASTERN CORPORATION
BANGOR, MAINE

Columbia READY-MASTER

ONE-PIECE CARBON-AND-MASTER MATCHED UNITS



- ★ Eliminates "fill-in" typing of duplicate office production forms and records.
- ★ Duplicates your forms plus typed or written "fill-in" - a single operation.
- ★ Makes up to several hundred copies in a matter of seconds - the form plus the "fill-in" - on any spirit-process duplicator.
- ★ Always ready for re-use, without additional carbon paper. Space for additional writing. No pasted together or loose sheets.

Carbon and master sheets are "made for each other" in one-piece, easy-to-use matched unit, with plenty of extra space for you to add progressive data for re-runs. Ask your dealer or the Columbia office nearest you for demonstration, sample forms, full information and prices.

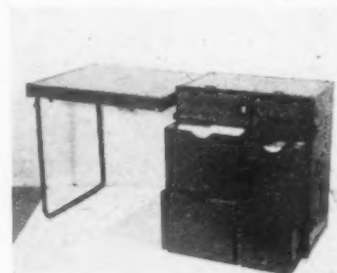
COLUMBIA RIBBON & CARBON MANUFACTURING CO., INC.

Main Office & Factory
Glen Cove, L. I., N. Y.
New York • Kansas City, Mo.
• Chicago • Detroit • Milwaukee • Minneapolis • Nashville • Atlanta • Philadelphia • Pittsburgh • Portland, Oregon • Cincinnati (Harris-Moers Co.) • Also: London, England • Sydney, Australia

COMPACT FIELD DESK AND TYPEWRITER CASE

An exceptionally compact field desk and a typewriter carrying case for use in the field have recently been developed and standardized by the Quartermaster Corps, the War Department has announced.

The field desk, which weighs approximately 76 pounds, is only 27 by 24 by 17¼ inches when packed for transporta-



The field desk contains 7 drawers.

tion, and occupies only 6½ cubic feet.

When set up for use, the lid section is removed, and one end hooked firmly to either side of the case at the correct typing height of 26 inches. A folding leg section of tubular steel swings out and snaps into position to support the free end.

The case or body of the desk contains 7 drawers of varying sizes two of which are of suitable size to be used as "in" and "out" trays on top of the desk. Two of the drawers are large enough to permit filing letter or legal size papers, and two are designed to hold service records. There is also a shallower top drawer, provided with a padlock, for confidential papers. The drawers are provided with



Typewriter case will carry any standard typewriter.

removable partitions and are reinforced with steel edges which slide easily on steel brackets.

The case is constructed of Exterior Grade plywood, and fungus-proof glue is used in the lamination. The whole case is coated with an extremely durable olive drab surfacing material.

Two folding chairs are provided which fold up and nest securely into space inside the lid or desk top when the desk is packed for transportation, and a sturdy carrying handle is placed on each side of the case for convenient handling.

The typewriter case weighs 18 pounds and measures 19½ by 12½ by 18¾ inches overall. It will carry any standard typewriter. The machine is bolted to a plywood base which slides into grooves

(Continued on page 254)



MORE P.A.'s CONSULT MacRAE'S

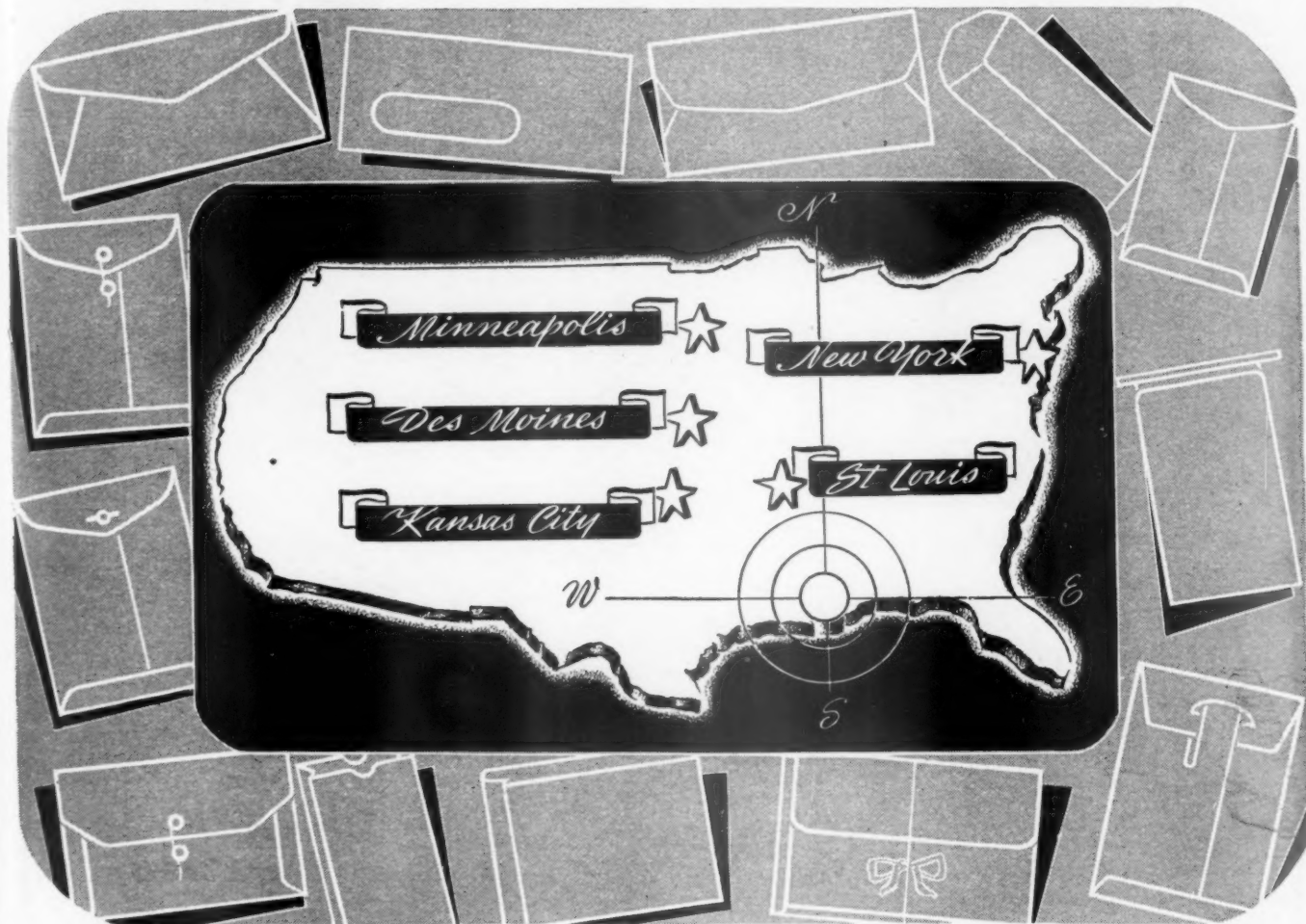
For advertising and book
rates, call your agency
or write . . .

MacRae's Blue Book

A DIRECTORY OF AMERICAN INDUSTRY

26 E. HURON ST. CHICAGO 11, ILL.

* TENSION Envelope FACTORIES *to Serve You!*

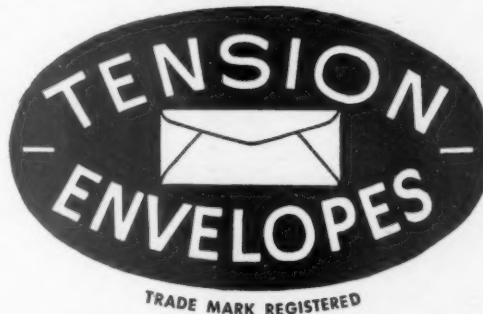


Modern, completely equipped Tension Envelope Factories are located to serve users of business envelopes everywhere. Each factory is a complete manufacturing unit, cooperating to serve the customers of all.

For more than 60 years Tension craftsmen have been delving deep into the envelope needs of customers. With this research and their 60 years of practical experience it is not surprising that TENSION KNOWS HOW.

Manufacturers Selling Direct to the User.

Tension trained representatives are established in 40 important cities across the land, eager and able to help you with your envelope problems. TENSION KNOWS HOW to make better envelopes for every business need, including filing and packaging as well as mailing.



TENSION ENVELOPE CORPORATION • NEW YORK 14, N. Y., 345 Hudson St. • *ST. LOUIS 3, MO., 23rd & Locust Sts.
 *MINNEAPOLIS 15, MINN., 500 S. 5th ST. • *DES MOINES 14, IOWA, 1912 Grand Ave. • *KANSAS CITY 8, MO., 19th & Campbell Sts.

**Originally Berkowitz Envelope Co.*



Copyright 1945, L C SMITH & CORONA TYPEWRITERS INC SYRACUSE 1 N Y

...which typewriter?

In the courtrooms of America we found outstanding evidence in favor of *one* particular typewriter. Court Reporters, unquestionably the world's hardest users of typewriters, buy more SMITH-CORONAS *than all other makes combined*. This fact is all the more revealing, when you realize that their income, *at piece-work rates*, depends entirely on the low upkeep, dependability, speed and production of their typewriters.



Limited quantities now available

Smith-Corona



"ALL RAG"

ANNIVERSARY BOND

Here's all you need to
know to get the finest
in letterhead paper

Fox River*Fine
Papers*
SINCE 1883

paper corporation

APPLETON
WISCONSIN

Don't stop with mere trademarks when buying letterhead paper. Like all products purchased to conduct your business, letterhead paper is also made to specifications... purchased accordingly by smart executives.

Unless your present letterhead watermark reads "all-rag", "100% rag" or "100% cotton fibre" it's not the finest available.

Anniversary Bond by Fox River is such a paper... an "all-rag" brilliant white prestige-building letterhead paper.

Prove it to yourself with our "See for Yourself" kit. It's free - write for it today.

THE WATERMARK IS YOUR
QUALITY GUARANTEE...
BE SURE IT READS "ALL-RAG"

Fox River*Fine
Papers*
SINCE 1883**FOX RIVER PAPER CORPORATION**

BOND, LEDGER, ONION SKIN — IN 25-50-75 AND 100% RAG CONTENT

403-K SO. APPLETON AVENUE
APPLETON, WISCONSIN

(Continued from page 254)

ciation from the list price when new.

All ceiling prices are broken down into two groups. There are ceiling prices for "reconditioned" machines, that is, machines that meet certain specifications listed in the regulation and carry the seller's six-month guarantee to repair all defects due to faulty parts, material and workmanship. Ceiling prices for machines sold "rough" are lower.

In the case of rentals, dollar-and-cent rates are derived from the well-developed rental rate structure already existing in the trade. These dollar-and-cent prices apply to most types of used business machines rented with maintenance service. A formula is provided for rentals of used business machines not specifically covered by dollar-and-cent prices.

For rentals without maintenance service, the maximum monthly charges are three-fifths of the charges set for rentals with maintenance service.

During the war, OPA explained, production of business machines was stopped completely or sharply curtailed, while demand increased enormously because of commercial and industrial expansion. Trade-ins are rare, and nowadays the nation's pool of used business machines is almost wholly in the hands of users.

In many cases, the resulting pressure on the market has sent prices for the more popular makes and models of used machines to levels equal to or higher than the prices for new machines, OPA said. Another source of inflation has been the shift of dealers from sales to large-scale rentals of used machines.

The new regulation, OPA said, provides a tighter and more clearly defined method of control, which is easier for the seller to apply to his business and more readily enforceable by the agency.

(Maximum Price Regulation 596—Used Business Machines—effective October 15, 1945.

"1000 SQUARE INCH—1000 SHEET" STANDARD ENDORSED

The production managers of many leading magazines have voted unanimously to recommend to the Bureau of Standards the adoption of the "1000 square inch—1000 sheet" basis as the standard for all paper, replacing the present seventeen different bases.

The action was taken by the Association of Publication Production Managers of which Irving B. Simon of MacFadden Publications, Inc., is president.

The decision of the magazine production managers announced today, places the nation's largest group of book paper consumers on record in support of a standardization proposal which has been hanging fire since World War I.

It is believed that the adoption of the new basis for measuring and counting paper will vastly simplify all measurement, handling, purchasing and record keeping connected with paper transactions.

The Committee on Simplified Practice for the Basic Sheet Sizes of Paper is

(Continued on page 258)



Who's got the edge on getting finished FIRST?

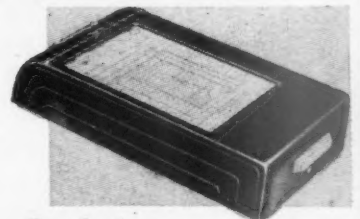
That's easy. The man who has no loose sheets — no carbon fuss to deal with. The man whose forms are all set for writing, and who by a simple twist of the wrist will complete his transaction. Here's convenience that means efficiency — UARCO Register convenience.

UARCO has a complete line of registers — a register to suit every record-writing need from purchasing orders to bills of lading. Forms,

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*


enough for a full day's use — usually more — are loaded at one time. The firm writing base plus an ever-fresh roll of carbon assures clean, legible copies. Also, if desired, registers that automatically file duplicate copies of every record written can be had.

Check UARCO's story today. A UARCO representative will be glad to show you their complete line of Registers free of charge. Or write today.




For Instance

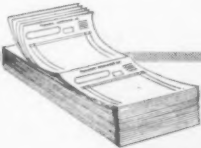
Here is one of UARCO's many Registers—the Featherweight. This register is suited for order writing in the field, for the taking of orders over the phone. It gives you all the register advantages you want in a small, compact case. For further details, write today.



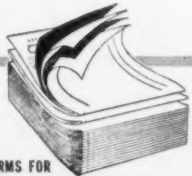
AUTOGRAPHIC REGISTERS




SINGLE SET
FORMS



CONTINUOUS-STRIP FORMS FOR
HANDWRITTEN TYPEWRITTEN • BUSINESS MACHINE RECORDS





BETTER BUSINESS FORMS

COMMERCIAL FORMS AND SYSTEMS



An ally of modern management, Reynolds and Reynolds is one of the world's largest suppliers of printed or lithographed control and operational forms.

- CARBON INTERLEAVED SYSTEMS
- BUSINESS MACHINE FORMS
- PAYROLL CHECKS and SYSTEMS

Effective Advertising
Literature, Distinctive
Stationery and Business
Forms of every kind

The
REYNOLDS
&
REYNOLDS

COMPANY • DAYTON 7, OHIO

Established 1866

SALES OFFICES IN
MANY PRINCIPAL CITIES

(Continued from page 256)

scheduled to meet within the next month at which time affirmative action is expected.

Mr. Simon pointed out that before acting on the simplified practice recommendation the Association of Publication Production Managers polled its entire membership.

INCREASE ON FOURDRINIER KRAFT CONTAINER BOARD

Manufacturers' ceiling prices for Fourdrinier Kraft container board, used for making shipping containers, have been increased \$3 a ton on sales east of the Rocky Mountains, the Office of Price Administration announces.

The increase will be absorbed by the manufacturers of shipping containers. It will not affect the cost of living.

The increase has been granted to (1) cover increased costs of production; (2) offset in large measure manufacturers' reduced revenues from V-board sales, now practically eliminated with the end of the war, and (3) prevent price ceilings from impeding production of this product during the reconversion period.

The increase was requested by the Fourdrinier Kraft Paperboard Industry Advisory Committee, and has been agreed to by OPA after a thorough analysis of the industry's current costs.

(Amendment 23 to Revised Price Schedule 32—Paperboard Sold East of the Rocky Mountains).

NEW BOOKLETS ON CARDINEER RECORD SYSTEM

"Lines of Light" have been effectively used to tell the story of the motions required to keep records over the past fifty-five years by a book and folder just released by Diebold, Incorporated of Canton, Ohio. The motion lines were ingeniously recorded on photographic plates by having electric bulbs attached to the wrists and heads of operators making random reference to ten identical accounts under the conditions prevalent at different periods.

The result is an interesting study for everyone responsible for maintaining records. It highlights the Diebold premise that there are only two things you can do with any record—write on it—or read from it. Posting on and reference to records is the only way to maintain control over business activity. In the search for better control few people have observed the motions and effort spent in posting and referring to records.

All motion patterns, Diebold explains, were photographed from the same focal point for accurate comparison though in only one do they show the equipment, their Cardineer Rotary File, used in making the study. Both the folder, "Rays of Light" and the book, "Across the Land" present the motion study in lines of light. The book continues with practical office motion study photo-diagrams and carries on to display the Cardineer line. Both folder and book are available upon request.

Get the facts on this new business aid: PHOTOCOPYING!



With APÉCO PHOTOEXACT,
quickly make copies of
LETTERS, BIDS, QUOTATIONS,
PURCHASE ORDERS, PICTURES,
SPECIFICATIONS, REQUISITIONS,
CATALOG SHEETS (over 100 others)

Now, with this handy unit right in your own office or plant, you can always have plenty of copies of *anything* whether written, typed, printed, drawn, or photographed—even if on both sides! Permanent, error-proof photocopies—at amazingly low cost! APÉCO makes them at 1-a-minute speed—saves hours of drafting and typing—expedites *everyone's* work. No darkroom or technical knowledge needed—even a boy or girl can operate APÉCO.

Send for this
handy file of in-
formation! FREE!

DATA ON
APÉCO
PHOTOEXACT

Includes 20-page, illustrated book

Here's the complete information you'll want to have on hand about this new miracle of office equipment—all in a convenient file folder. Shows the many uses of photocopying in every department—graphically illustrates the "why" and "how" of this amazingly simple procedure. It's yours for the asking—no strings attached. Send for this helpful file today.

AMERICAN PHOTOCOPY EQUIPMENT CO.

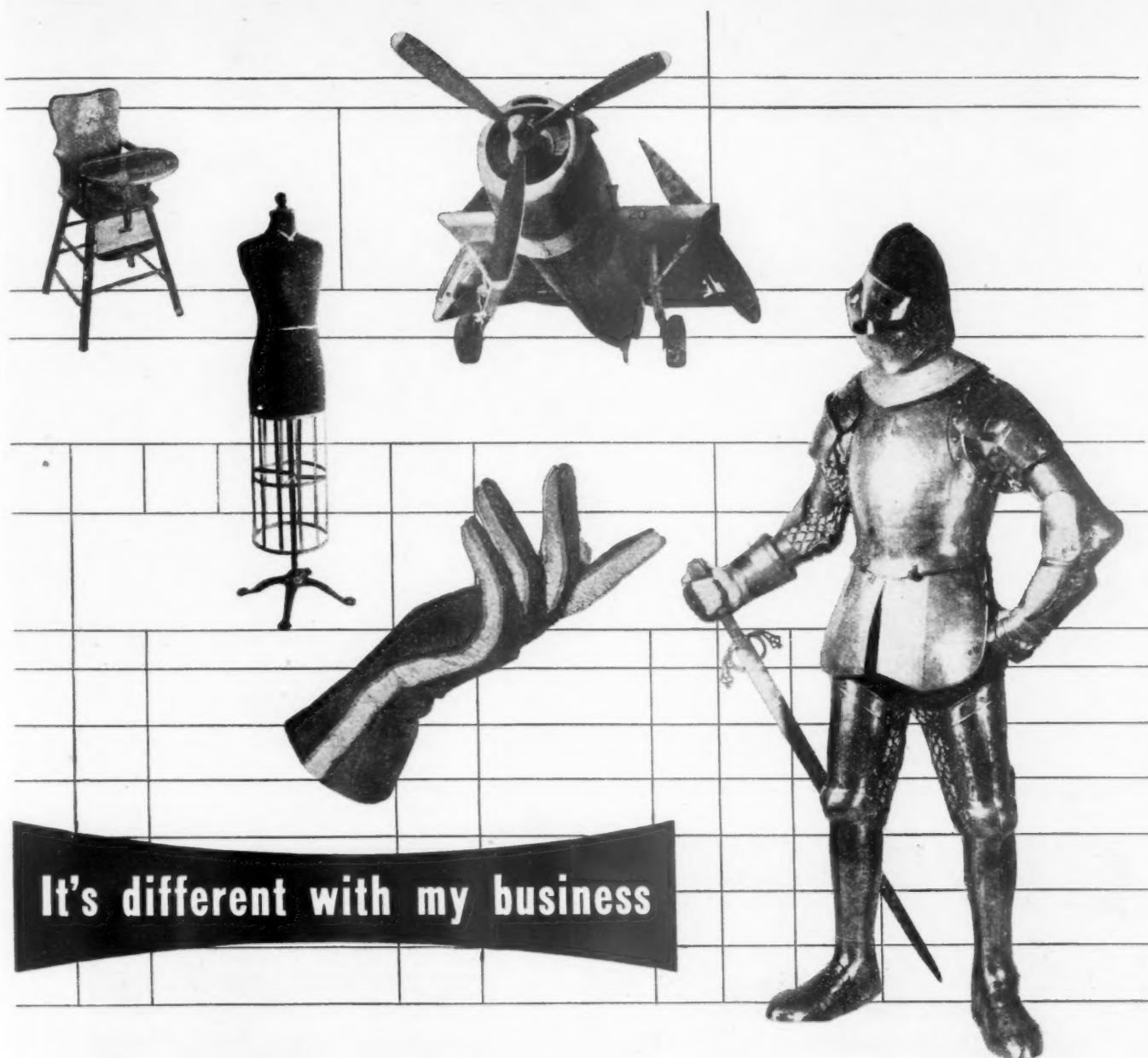
2849 N. Clark St., Dept. NG115

Chicago 14, Ill.

Representatives in principal cities and Canada

The
APÉCO
PHOTOEXACT
"Copies Anything!"

AMERICA'S MOST WIDELY
USED PHOTOCOPY EQUIPMENT



It's different with my business

Simmering on the back of the stove is many a man's idea that his business forms need overhauling.

"My business is different," he will say. "We have special problems which ought to get special attention *before* the forms are designed."

Your business *is* different. Whether you make gloves, airplanes, armor suits, dress goods or baby chairs, your business forms should be engineered to your specific needs.

A bank will not have the problems of an insurance company. A bus line will demand forms that a grocery store finds unnecessary. A corporation with many branches requires a treatment all its own. Moore knows this, and designs accordingly.

The Moore representative is a form specialist. He will study your business forms, in co-operation with members of your organization. Then he will recommend for your needs.

The ten companies below have long been under Moore ownership. Now they combine under the Moore name — without change in ownership, management or policy.

To find out, without any obligation, what Moore can do for your business, get in touch with the nearest Moore division, as listed below, or its local office. *Moore is ready to supply you with everything from a simple sales book to the most elaborate forms.*

AMERICAN SALES BOOK CO., INC., NIAGARA FALLS AND ELMIRA, N. Y.
 PACIFIC MANIFOLDING BOOK CO., INC., EMERYVILLE; LOS ANGELES, CALIF.
 GILMAN FANFOLD CORP., NIAGARA FALLS, N. Y.
 COSBY-WIRTH MANIFOLD BOOK CO., MINNEAPOLIS, MINN.
 MOORE RESEARCH & SERVICE CO., INC., NIAGARA FALLS, N. Y.
 SOUTHERN BUSINESS SYSTEMS, INC., ORLANDO, FLA.
 MOORE BUSINESS FORMS, INC. (New Southern Div.), DALLAS, TEX.; ATLANTA, GA.
 In Canada—Moore Business Forms, Ltd., succeeding Burt Business Forms, Ltd., Toronto
 Western Sales Book Co., Ltd., Winnipeg and Vancouver
 National Sales Check Book Co., Ltd., Montreal

MOORE BUSINESS FORMS, INC.



"Thanksgiving", Lithograph by Doris Lee

HOW DIFFERENT THIS YEAR

Thanksgiving. We can all read new meaning in the word this year. War no longer casts its shadow over our lives. How good to be in a world at peace.

Not that we're overlooking the postwar problems that face us. We know that getting back to normal won't be a matter of overnight miracles any more than gearing for wartime production was.

"Patience, work and co-operation all along the line"—that seems to be the formula needed now. In the few short months since peace, we

at International have seen this formula produce some highly gratifying results . . . while working with our Distributors to meet the requirements for your new-day plans. International Paper Company, 220 East 42nd Street, New York 17, N. Y.

**INTERNATIONAL
PAPERS**

*for Printing
and Converting*



The THOROUGHLY DEPENDABLE

Hamilton



H. R.
Model

AUTOGRAPHIC REGISTER

Always skillfully designed,
expertly engineered for
nearly 60 years.



Hamilton

PORTABLE REGISTER

Light weight, scientific, durable
"write on the spot" record.
Very popular.

Hamilton

PRINTED FORMS

Millions of sets of Hamilton Printed Forms are used each year.
They insure accurate alignment; smooth rapid form writing.
Always get Hamilton facts before buying.

THE HAMILTON AUTOGRAPHIC REGISTER COMPANY
HAMILTON, OHIO

Since 1887

(Continued from page 260)

shortage. America's paper mills can continue operation only if we continue to do a good job on paper salvage.

The demands for paper cannot be filled by increased production of wood pulp because the lack of manpower in the forests makes it impossible to harvest a sufficient number of trees. Waste paper directly replaces wood pulp in the production process, and paper salvage is the answer to the bad pulp situation caused by lack of lumberjacks to cut timber. Until lumberjacks return to work in the forests in numbers sufficient to cut the amount of wood required, paper salvage must continue.

The main points to keep in mind are these:

1. Paper is used in the manufacture and packaging of the supplies used by our Armed Forces in all occupied countries. Paper shipped overseas is not returned. It will never again be available in the form of waste paper as a raw material to keep our paper mills operating.

2. The process of Reconversion will step up civilian demands, as quantities of paper packaging will be required to put the increased civilian goods resulting from Reconversion back upon the shelves.

3. The demand for paper is coupled with an extreme shortage of manpower necessary to cut timber for the paper mills. Only waste paper will fill the gap. It will be some time before the lumberjacks return to the forests in sufficient numbers to cut the wood necessary to meet paper requirements.

1 1 1

LOOSE LEAF BINDING WITH CLOSELY SPACED RINGS

"Numer-Ring" is the name of new type of loose leaf binding with closely spaced rings for extra protection against sheets tearing, introduced by the National Blank Book Co., Holyoke, Mass. Maker states that the Numer-Ring book has a triple purpose, namely that it can be used either as a ring book or as a visible record binder, or for catalog cover housing. Features include closely spaced rings for extra protection against sheets tearing or wearing out; rings are spaced on standard $\frac{3}{4}$ " centers in two capacities— $\frac{1}{2}$ " and 1", and are easy to open; rings meet accurately and precisely when closed; sheets turn easily and book opens flat and lies flat for writing or reference. Ring spacing allows sheets to be assembled with visible margins. Numer-Ring is available in stock covers and can be tailor-made in various styles and materials for special uses.

1 1 1

POSTURE CHAIRS FOR OFFICE WORKERS

Circular describing Harter steel posture chairs for office workers is accompanied by swatches showing nylon backed coated fabrics available for upholstering chairs. The chairs feature three simple positive adjustments, namely, height of seat from the floor, height of backrest

(Continued on page 264)


THEY'RE EASIEST TO FEED


...and it pays to feed them the best!

When your office is equipped with the best in staplers—why load them with anything but the best in *staples*? Why get 90% when you can get 100% efficiency? Why buy unbranded *flat staples* when you can have guaranteed precision-made *round wire staples* simply by specifying



SWINGLINE Speed STAPLES are the only 100% *round* wire staples. They're *round* for the same reason that good nails are *round*—for easier, cleaner penetration. *Round* wire staples do not collect excess lacquer because they do not have a *flat* surface. They retain lacquer only at point of contact!

SPEED PRODUCTS COMPANY,  37-18 Northern Boulevard, Long Island City 1, N. Y.



OLD DUTCH

PULL-FREE Pencil Carbon

You don't have to tussle with this pencil carbon. It yields at a touch. Use as sharp a pencil as you wish. Bear down as hard as you like. Then finger the carbon and see it come free—quickly, cleanly.

Old Dutch PULL-FREE Pencil Carbon is specially processed to prevent clinging and sticking. . . . One more feature highlighting the better quality that has characterized Old Dutch products for nearly 50 years.

Ask Your Old Dutch Customer Engineer

WATERS & WATERS BRANCH

511 Locust St., St. Louis

Burlington, N. J.

San Francisco, Cal.

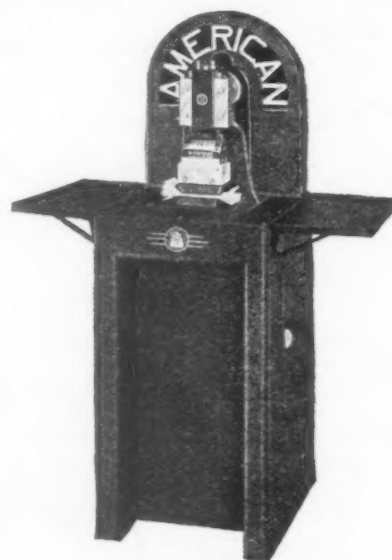
(Continued from page 262)

from the seat, and distance of backrest from work being done. The adjustments are made by simple hand controls. The adjustable seat and the two back rest adjustments — up — down and backward — forward, permit comfortable weight distribution by providing restful support at the small of the back.

♦ ♦ ♦

ELECTRIC CHECK CANCELERS

Illustration shows No. 71 electric perforator announced by the American Perforator Co., 625 Jackson Boulevard, Chicago, Ill. According to the maker, this model can be expected to cancel up



Cancels 900 checks a minute

to 900 checks per minute. Another model, No. 72, is restricted to approximately 500 per minute. Machine is operated by endless V-belt drive, motor being float-mounted to eliminate vibration. Height of table, which has drop leaves, is 36 inches. Width of table with both leaves up is 40¼ inches. Machine is equipped with two complete die blocks. Floor space occupied by machine is 23" x 19¾". Principal difference between the two models is the number of checks that can be perforated at one time.

♦ ♦ ♦

MAY INCLUDE WASTEPAPERS WITH OLD CONTAINER SCRAP

Wastepaper dealers may include specified wastepapers with their shipments of old corrugated containers and No. 1 heavy books and magazines and still sell at the ceiling prices for these two grades, the Office of Price Administration announced recently.

This action, effective October 17, 1945, is taken at the request of both sellers and buyers of wastepaper.

Ordinarily, when shipments contain more than one grade of wastepaper, a lower ceiling price, established for mixed wastepaper, applies.

An exception is now made so that equally priced or higher priced Kraft grades may be included in shipments of

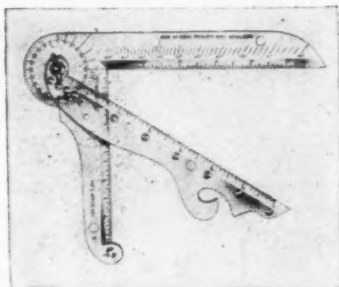
old corrugated containers, and equally priced or higher priced white grades may be included in shipments of No. 1 heavy books and magazines.

OPA said that small quantities of these other grades occasionally get mixed in, and it does not pay a dealer to go to the trouble of sorting them out.

(Amendment 14 to Maximum Price Regulation 30 — Wastepaper — effective October 17, 1945.)

EIGHT-IN-ONE DRAWING TOOLS

A new all-purpose drawing and measuring device, the Parva-graph has just been introduced by Parva Products Company, West Haven, Connecticut. This novel device is accurately designed and mathematically calibrated to serve as a square, divider, protractor, triangle, ruler, compass, french curve and mitre—virtually eight instruments in one.



For drawing and measuring

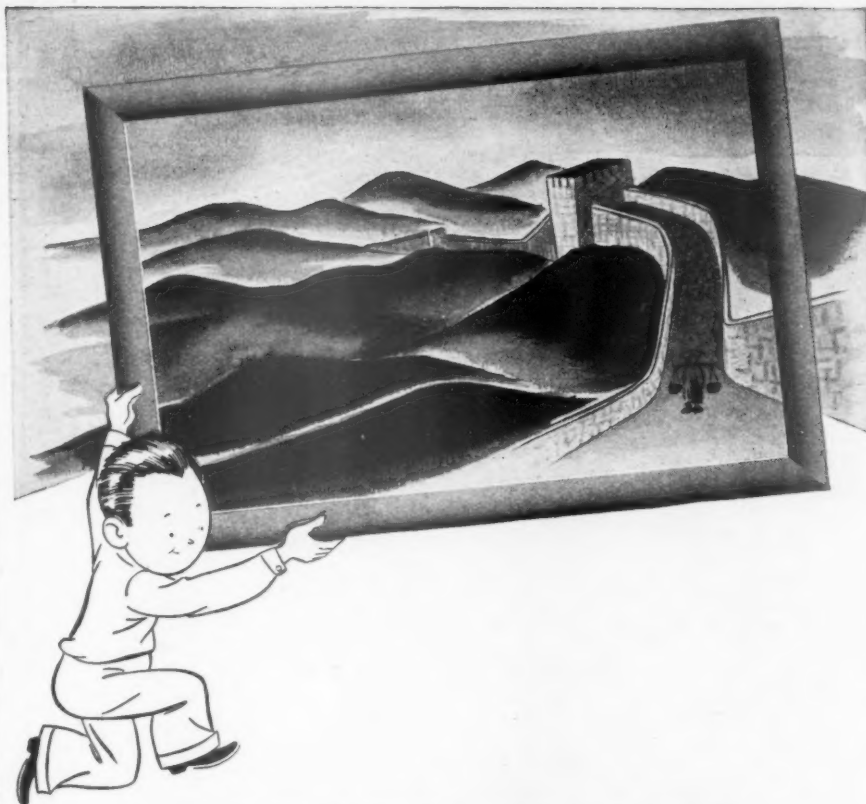
The Parva-graph is made of a transparent plastic and consists of two parts; a combination square and a removable mitre arm which can be mounted on the square through either of two mounting holes. A wing nut locks the mitre arm at any desired position. By varying the position of the mitre arm, angles of any degree can be formed, and right angle triangles can be made with acute angles of any degree desired. By removing the mitre arm entirely and using it as a radius, circles can be scribed from $\frac{1}{2}$ " to 14" in diameter. The Parva-graph may be used also to square up lumber, to scribe a line on a board as a guide for rip-sawing, and to mitre a 45 degree angle off the protractor in three positions. It can be locked in the 45 degree position by driving a pin into the drawing board through two small holes provided for that purpose in the combination square and mitre arm.

DIRECTORY OF PAPER AND ALLIED TRADES

The 1946 edition of Lockwood's Directory of the Paper and Allied Trades, revised to date, is scheduled to be published in November by Lockwood's Directory, 15 West 47th Street, New York.

All sections of the 1946 edition of the directory will show the many important changes which have occurred in the industry during the past year. The direc-

(Continued on page 266)



PERMANENCE

... with



Like the Wall of China, Penciltex is a symbol of permanence. After many years of reference, filing and printing, pencil drawings on Penciltex continue to make good prints. Penciltex has proven its claim to provide permanent engineering records without sacrificing the drawing speed of pencil. Penciltex is another successful Post idea to provide better drafting room methods. Penciltex is made only by Post.

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YOUR PRINTER has handled a great deal of paper in his time. How it should feel... how it will behave in the press... how it will react with ink... these are every day matters to him.

Ask him about Rising Papers. We think we know the kind of answer you will receive. He's sure to comment on the extra special quality engineered into Rising Papers and the high standards of uniformity that make it better than the average good paper.

Rising technical papers are equally praised, too. Rising Paper Company, Housatonic, Mass.

Ask your printer... he **KNOWS** paper!



Rising Papers

PRINTING AND TECHNICAL

WASTE PAPER IS STILL ESSENTIAL...KEEP SAVING IT!

(Continued from page 265)

tory is published in two editions—the full regular edition and the small, convenient, pocket-sized **Traveler's edition**. The Traveler's edition contains only the mill section as printed in the regular edition including the reports of the paper and pulp mills, the index to the mills, and the alphabetical list of officials and their connections.

The price of the 1946 edition is \$7.50 a copy or \$7.00, if remittance accompanies order, for either the regular or the Traveler's edition. Delivery is prepaid.

SAFETY IN THE OFFICE A DOZEN HAZARDS

Small card index files, desk drawers, filing cabinets, and paper spike files are among a dozen office hazards extracted from a list of fifty compiled by the Safety Department of R. R. LeTourneau, Inc., by the *Blackmer Swinging Vane*. Here's the list of everyday things that could be the cause of serious personal injury:

Small card index files, when placed on top of large correspondence cabinets or near the edge of cabinets, desks, bookcases, etc., easily overbalance and may fall when two or more drawers are pulled out. Single drawer files may tip over and fall under similar conditions. To prevent accidents of this kind the files should be joined together when placed side by side in series. When used individually they should be secured in some manner to overcome tipping and falling.

Individual upright filing cabinets should be secured to prevent over-balancing. Single cabinets should be secured to the floor or to the wall and, when there are two or more, should be fastened to each other.

The tension of springs on self-closing doors is frequently too great, thereby causing the door to close rapidly and strike the employee passing through or someone entering the doorway.

Splintered parts of desks and chairs should be dressed or taped to prevent damage to clothing.

Linoleum covered office floors when wet or highly polished may present slipping and falling hazards, especially for girls wearing high heels. These hazards on stairways are particularly dangerous. Accidents of this kind can be minimized by keeping floors dry and by not waxing the linoleum. An effort should be made to arrange the work so that women office workers are required to use the stairs as little as possible in their normal operation.

Paper spike files have always constituted a distinct office hazard and most companies have discontinued their use altogether.

Desk drawers, file drawers and desk slides carelessly left open very often cause serious injuries when a person inadvertently strikes or stumbles over one of them.

The overcrowding of files, desks, etc., should be avoided to prevent falling material.

The use of pins to fasten papers frequently results in minor injuries which may easily become infected. It is con-

sidered a good practice to use clips or staples and to discontinue the use of pins. Occasionally, however, persons working in filing sections will cut their fingers on metal fasteners or on the edges of paper. Although rubber fingers tend to prevent such accidents, it is perhaps impossible to eliminate them entirely. For this reason the importance of immediate First Aid treatment might well be emphasized.

Walking through aisleways or working places with pens, pencils, knives or scissors in the hand is a hazard which is recognized and prohibited in a number of companies.

Running or hurrying while opening the doors in hallways may lead to an accident as it is usually impossible to determine if another person is opposite the door.

Broken glass should not be placed in wastebaskets. If bottles or other pieces of glassware have been broken, it is suggested that this material be folded or packed in heavy paper and the package should be marked "Broken Glass" and placed alongside the wastebasket at the end of the day so that the person removing waste paper will not be cut accidentally.

RESERVE REQUIREMENTS REDUCED 20% UNDER CO M-241

Reserve requirements covering the production of all paper and paperboard have been reduced to 20 per cent of monthly production, and inventory ceilings, except for newsprint, have been increased materially, the War Production Board announces.

By amending the paper and paperboard conservation order (M-241), which controls paper and paperboard production, excepting containerboard, and establishes reserves to insure the filling of governmental and bottleneck reconversion orders, WPB effected a relaxation permitting paper dealers and consumers to rebuild their depleted inventories, WPB Paper Division officials explained.

The current amendment reduces reserve production of rag content papers, used for bonds, currency, letterheads and certain other commercial and industrial purposes, from 35 to 20 per cent of the manufacturer's monthly production. Reserves of all other types of paper and paperboard remain at 20 per cent of total production of a grade or class, it was pointed out.

At the same time, the list of Governmental procurement activities benefited under Order M-241 was modified slightly by removing inactive accounts and is now confined to the military and certain other agencies.

Present supplies of paper and paperboard and the recent revocation of all printing and publishing limitation orders, save the order covering newsprint, warrant the modification of previous wartime inventory restrictions in order to provide equitably for all persons affected by Order M-241, WPB officials said. Under the amendment, inventories of consumers and mills are increased from 30 to 50 tons or from 30 to 90 days' sup-



Caught in a buying rut?

Maybe it was good policy, when supplies were scarce, to stick by one source of supply — even when full value was lacking. But isn't it time to get out of that buying rut?

For instance, have you investigated the advantages of Webster's Micrometric Carbon Paper? A numbered scale, actually a part of each sheet, helps your secretaries and stenographers in five ways. This exclusive feature does not add one penny to the price to you.

Constant research has helped to build quality and durability into the complete line of Webster products. That's a good thing to remember the next time you order carbon papers and typewriter ribbons; duplicating carbon papers and accessories; carbon paper ribbons for photo-offset work; ribbons and carbons for Elliott-Fisher, Addressing, Adding and International Business Machines. Consult your nearest dealer or write to F. S. Webster Company, 7 Amherst Street, Cambridge 42, Mass.

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Send for these 5 Useful Tools!... FREE!

With these free Hammermill helps you can design time- and money-saving business forms exactly fitted for the job you want them to do:

- 1. Hammermill plastic Form Layout Rule.** Carries inch and pica printer's scales, also pica and elite typewriter scales.
- 2. Layout Sheet** (either typewriter pica- or elite-spaced) for designing forms to exact size and shape required.
- 3. Idea-book, "How to Design a Business Form."** Gives economical sizes, suggestions on when and how to use forms, form-designing helps, etc.
- 4. Manual of Paper Information.** Tells what paper you can get. Lists Hammermill items available now.
- 5. Hammermill Form-Designing Kit.** Contains: 26-point check-list and printing Specification Sheets.

Use the 26-point check-list to test efficiency of your present forms. Whatever is needed, this set of practical tools will guide you. Make your task easy. Mail the coupon. No salesman will call.

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**FINISH
THE JOB
...WITH
VICTORY
BONDS**

(Continued from page 267)

ply, based on average rate of consumption during the latest three preceding months, or on the projected consumption during the next three months. Paper merchants' inventories are now limited in dollar value to \$25,000 or 50 per cent of the cost price of his sales during the first half of 1944, whichever is greater.

Inventory restrictions, however, do not apply to persons holding specific WPB inventory authorizations. This permits persons who have been granted appeals to continue to operate within the limits of their respective grants.

Consumers' certificates are now required only for the delivery of newsprint under the newsprint order (L-240), WPB said.

PAPER SIMPLIFICATION ORDER L-120 REVOKED

Control over the weight, size, packaging, color and other wartime limitations on the production of paper was removed today by the War Production Board, effective September 30.

This was effected by the revocation of the paper simplification and standardization order (L-120) together with its sixteen schedules covering practically all types of paper and converted paper products except wrapping paper.

The order came into being in a period when world supplies of paper were suddenly curtailed because war shut off European shipments while the requirements of our own and Allied governments were rapidly mounting. Order L-120 at once reduced the number of sizes, weights, colors, finishes and grades of paper to a level of simplicity and economy of consumption. This level, while below the normal requirements of commerce and industry and civilian needs, nevertheless provided a sufficient range of products to support a wartime economy and a variety adequate for the wartime requirements of government and military needs.

As the supply of raw materials for the manufacture of paper tightened, additional restrictions were incorporated in L-120 increasing the problems of the paper and paper products industries. While every appeal for partial relaxation was carefully considered, the WPB Paper Division held constantly to the view that each of the thousands of items and the numerous schedules under L-120 carried a more or less proportionate share of the total responsibility and each was a fixed part of the whole.

Numerous industry advisory committees were consulted relative to the method and timing of the revocation of the order. In nearly all instances WPB encountered divergent opinions, although a major portion of industry favored early and complete revocation of the order, following a short period of advance notice. The complete order was therefore held in force until improvement in the woodpulp supply had taken place.

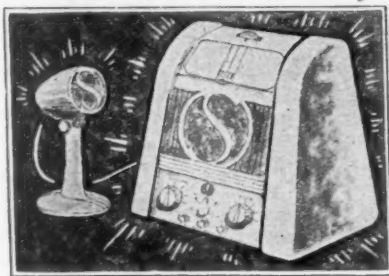
The revocation of L-120 does not mean that the supply of paper now balances world demand but is a step toward the

natural operation of production and consumption of paper by the elimination of governmental regulations as to what shall be produced and consumed, WPB said.

1 1 1

ELECTRONIC RECORDING MACHINE

Sound-on-wire dictating and recording machine is announced by Standard Business Machines Co., 542 So. Dearborn St., Chicago, Ill. Known as the Standard Wire Recorder, its features consist of desk type microphone which can be held in the hand; built-in speaker and plug-in for headphone use; dictation erasure by



Electronic Dictating Machine

demagnetization with dial calibration for reference to any part of a sentence.

The recording is on a fine wire fed from one spool onto another which passes through a magnetic recording head, the sound being electronically recorded thereon. A spool of wire is sufficient for an hour of uninterrupted dictation. When the recording is finished it can be played back instantly. Erasures or corrections are made by simply talking over the record already incorporated in the wire, since the recording is automatically erased in front of the new recording by a disk coil which blanks out the previous recording through a high frequency magnetic field. Recordings may be played back an unlimited number of times, and the wire may be re-used indefinitely.

The machine is portable. It may be used for simple recording of letters or reports, or may be used with a high fidelity microphone for the recording of conferences.

1 1 1

REVISE ENVELOPE PRICE CEILING PERIOD

Manufacturers will determine their ceiling prices for envelopes by taking their highest prices in effect from October 1 to December 15, 1941, instead of their highest prices from October 1 to 15, 1941, the Office of Price Administration announces.

This extension of the base period, effective October 17, 1945, will result in slightly higher prices for a minority of companies in the industry which were not able to complete before mid-December the establishment of their price schedules at the levels set by the majority of companies within the original base period of October 1 to 15, 1941.

Any increases occurring at the manufacturing level will not be passed on by

With Vari-Typer, the Office Composing Machine, printing and duplicating costs in the average company can be reduced as much as 62%. Vari-Typer, used to compose master copy for instruction manuals, office forms, house organs, parts lists, catalogs, bulletins, etc., produces copy that is infinitely superior to typewriting, and highly comparable to type-set copy.

Any competent typist operates Vari-Typer in your own office. Using its variety of several hundred instantly-changeable sizes and styles of type, she makes a master copy of your work. And because Vari-Typer gets twice as much copy on a sheet as a standard typewriter, you cut your costs in this way: If the job is reproduced on any standard type of duplicator, the fewer pages of master copy mean less paper for the finished job, fewer stencils, less ink, less production time, etc. Or you can reproduce Vari-Typer master copy by photo-offset and get the same savings on your printer's bill -- plus the complete saving of type-setting costs!

For details on the modern business machine that's setting new records for paper work economy, write for the 16-page booklet, *Vari-Typer, A New Tool For Business*.

(THIS TEXT IS A SAMPLE OF VARI-TYPING)

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ST. LOUIS
Tobey Fine Papers, Inc.
ST. PAUL
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SPRINGFIELD, MASS.
Paper House of New Eng-
land
SAN FRANCISCO
Zellerbach Paper Co.
TOLEDO
Central Ohio Paper Co.
TORONTO, ONTARIO
United Paper Mills
WASHINGTON, D. C.
Barton, Duer & Koch
Paper Co.
WORCESTER
Storrs & Bement Paper
Co.

subsequent sellers. Consequently, price ceilings for envelopes at the wholesale or retail levels are not changed.

This action was requested by the industry advisory committee for the envelope industry to remove inequities resulting from the shorter "freeze" period heretofore in effect and to facilitate the industry's transition to a normal peace-time basis.

(Amendment 2 to Revised Maximum Price Regulation 129—Certain Converted Paper Products and Certain Industrial Papers—effective October 17, 1945.)

EASY TO SEE WEEKLY WALL CALENDAR

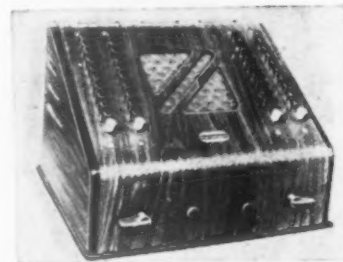
The large, easy to read giant numerals of each week are combined with the current, previous and following month, on 1946 Post weekly wall calendar.

New style lettering adds to the legibility and attractiveness, combining all of the practical value of the 1945 editions and the beauty of the multi-colored Stan Ekman illustration.

This calendar includes, a section of technical data covering wire and sheet metal gauges, screw threads, etc., plus a full twelve month calendar all on one sheet.

1946 calendars are furnished free of charge. Address all requests to the Fredrick Post Co., Box 803, Chicago 90.

INTERCOMMUNICATION AND PAGING SYSTEM



Self-contained, desk consol communication system, which is designed for two-way talk, paging of soundcasting, is announced by David Bogen Co., 663 Broadway, New York 12, N. Y. The system permits master to master, or master to remote operation with any number of stations up to 40. Push button station selection is provided, and a master key allows blanket calls to all stations. The master unit illustrated delivers 15 watts, is housed in walnut cabinet with pilot light, power switch, amplifier and loud speaker microphone self-contained. Bulletin C9-43P sent upon request.

REDUCE CEILINGS ON SEVEN COARSE PAPER PRODUCTS

Wholesale distributors' ceiling prices for seven lines of coarse paper products have been reduced to bring them into proper balance with the ceilings for other coarse paper products, the Office of Price

Administration announced recently.

The reductions, effective October 16, 1945, will average 20 to 30 per cent under present prices for these low cost items. Napkins, doilies, tray covers, bowl liners, butter chips, soufflé cups and baking cups are the lines affected.

Distributors usually sell these products in large quantities to industrial and institutional users. The quantity going into retail channels is limited. Retail ceiling prices are not changed by today's action. Such ceilings continue at March 1942 freeze levels.

Today's reductions were made after consultation with the trade, when it was pointed out that the formula for determining distributors' ceiling established excessive prices for these seven lines.

On an eighth item, shirtboards, two alternative pricing units have been included in the price ceiling formula. Ceiling prices for shirtboards are not changed by this action.

(Amendment 6 to Maximum Price Regulation 349—Distributors' Maximum Prices for Certain Coarse Paper Products—effective October 16, 1945.)

♦ ♦ ♦

CONTRACT SETTLEMENT

Office of Contract Settlement is placing major emphasis on getting all claims in as quickly as possible to expedite settlement of contracts.

Objective is to clear up bulk of the smaller claims to facilitate handling of the larger contracts.

OCS would like to have all contracts under \$100,000 filed by the end of the year, and the contracting agencies promise that with quick filing action, major portion of the smaller claims can be settled within the next three to six months.

♦ ♦ ♦

PACKAGING INSTITUTE MEETING TO BE HELD IN NEW YORK

The seventh annual meeting of Packaging Institute, Inc., will be held at the Hotel Commodore, New York, on November 26 and 27. Attendance at this meeting and packaging conference will be limited to the membership of the Institute because of present crowded hotels and traveling facilities.

Major Albin P. Dearing has been named Executive Director of the Institute. Headquarters of the Institute are at 342 Madison Avenue, New York.

♦ ♦ ♦

LIGHTING EXPOSITION SPONSORED BY G. E. LAMP DEPARTMENT

Lighting exposition styled the "Victory Lighting Jubilee," sponsored by General Electric's Lamp Department, will be held in New York City at the 17th Regiment Armory November 25th through the 30th.

The five-day exposition will bring together a representative cross-section of the lighting fixture and portable lamp industries. Virtually every manner of fixture designed to help "bring the sun indoors" for commercial, industrial and residential needs will be featured.

NEED OFFICE HELP?



If you are coping with the help problem these days, take a tip from the kitten—get Stylewriter Ribbons. Stylewriter's extra length means fewer ribbon changes—a saving of time for the busy secretary. And Stylewriter's fine weave means easier-to-read copies—a saving of time for the busy executive.



THE CARTER'S INK COMPANY

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Carbon and Ribbon Specialists

PERSONALITIES *in the* NEWS

R. W. Ote has been appointed Assistant Purchasing Agent of Chicago Great Western Railway Company, Chicago, Ill.

William T. Kelly, Jr. has been elected president of the Kellogg Division, it was announced by Wm. B. Given, Jr., Presi-



dent of American Brake Shoe Company. Mr. Kelly has been executive vice-president of Kellogg since December, 1944.

Mr. Kelly joined American Brake Shoe by way of National Bearing Metals Corporation, a subsidiary. He was transferred to Brake Shoe's Purchasing Department in New York in 1929 and became General Purchasing Agent in 1940. He continues to hold this position.

Harvey Lipp has joined Emerson Radio and Phonograph Corporation, New York, as Assistant Director of Purchases. He will serve as general assistant to Jerome Herold in all administrative and functional matters concerning the purchasing department.

J. M. Brown, Director of Purchases, Veeder Root, Inc., Hartford, Conn., addressed the second annual marketing and business conference of Sales Managers of Ohio industries at Ohio State Univ., Columbus October 23. The title of his talk was "The Salesman Today as the Purchasing Agent Sees Him." More than 500 executives attended the conference.

The Purchasing Department of American Maize-Products Company has been moved from the Chicago office to the plant office at Roby, Indiana. **E. C. Scoville**, will continue to manage the department.

Ivan Swanson, Assistant City Purchasing Agent of Omaha, Neb., has been recommended for appointment as Purchasing Agent to succeed Frank Welty, recently deceased. Mr. Swanson was assistant Purchasing Agent for the streetcar company seven years when Mr. Welty was that firm's Purchasing Agent and was Purchasing Agent for the Omaha Ford branch two years before joining the City staff.

Albert Baron, who has been associated with Federated Metals Division of American Smelting & Refining Company since 1928, has been made Purchasing Agent of its Whiting, Ind. plant. For the past year he has been assistant purchasing agent.

D. W. Williams, Purchasing Agent over 28 years for the R. Wallace & Sons Manufacturing Co., Wallingford, Conn., has been appointed assistant to the president. **T. J. Latham**, who served in the Purchasing department for 25 years as assistant Purchasing Agent, will succeed Mr. Williams.

Col. Robert T. Stevens, chairman of the board of J. P. Stevens & Co., Inc., yesterday was reelected a director of General Foods Corporation at the regular monthly meeting of the directorate, Clarence Francis, GF board chairman announced.

Until his release last month, Col. Stevens was Deputy Director for Purchases



in the procurement division of the Office of the Quartermaster General. Lieut. General Brehon B. Somervell personally awarded him the Legion of Merit.

Col. Stevens was first elected a director of General Foods November 20, 1940. He resigned January 15, 1942 to enter the procurement division where he directed the work of five main branches; clothing, including leather; textiles, equipment, and general supply; paper, lumber, and office supplies; and production service branch.

At the time he entered service Col. Stevens was a class B director of the Federal Reserve Bank of New York, trustee of Mutual Life Insurance Co. of New York, director of New York Telephone Co., and member of the board of many mills which his company represents. During the first World War he was a second lieutenant in field artillery.

R. G. Ervin, formerly connected with the Chicago Bridge & Iron Co., is now Purchasing Agent for the American Casting Company, Birmingham, Ala.

Paul E. Kyburg, formerly Director of Purchases for Farrel-Birmingham Co.,

Ansonia, Conn., is now assistant general manager of Arthur H. DuGrenier, Inc., Haverhill, Mass., manufacturers of vending machines.

James A. Witter, who has been filling an executive assignment in the Office of Price Administration while on leave of absence from his position as general manager of Armstrong's Priorities Department, has returned to active service with the Company and has been assigned to the Purchasing Department as Purchasing Agent for raw materials.

W. D. Williams, who has been Purchasing Agent for over 28 years for R. Wallace & Sons Manufacturing Co., Wallingford, Conn., has been appointed to the position of assistant to the president. **T. J. Latham**, who has been Mr. Williams' assistant for 25 years, has been made Purchasing Agent. Mr. Williams will continue to purchase certain specific items along with the execution of his new duties.

Clifford G. Strote has been named Purchasing Agent for the H. C. Frick Coke Company, New York, N. Y., succeeding George W. Brown who is retiring after 53 years of service.

Bryant Rich has joined the Star Manufacturing Co., Inc., St. Louis, Mo., as Purchasing Agent. Mr. Rich was formerly with the Jackes-Evans Manufacturing Co., also of St. Louis. The Star company manufactures food serving equipment and popcorn machines, and Mr. Rich will also handle inventory control and flow of materials to production.

W. Arthur Abel has been appointed Assistant General Purchasing Agent of the Armstrong Cork Co., filling the position



made vacant by the death of R. H. Bowman in September. Mr. Abel has been with the company since 1910 and in the Purchasing Department since 1932. He served first as salvage manager and more recently as Purchasing Agent for engineering, mechanical and electrical equipment.

(Continued on page 274)

Reconvert with America's most popular all-purpose, woodworking machine!



The era ahead in all types of industries will demand a woodworking machine like DeWalt for immediate reconversion.

This versatile, all-purpose power saw is the machine you should consider first. It is ideal for general carpenter maintenance in or outside the plant, for crating and boxing, for intricate pattern work, or for general woodworking.

DeWalt is the only power saw of its kind made that's backed with almost a quarter of a century's experience and specialization in the design, development and production of one machine.

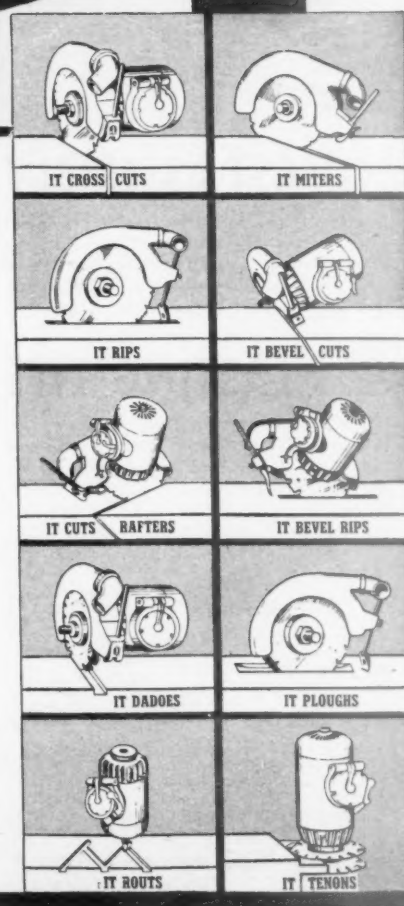
It is the machine that will bring new standards of efficiency and production to your cutting jobs no matter how . . . where . . . or when you cut wood.

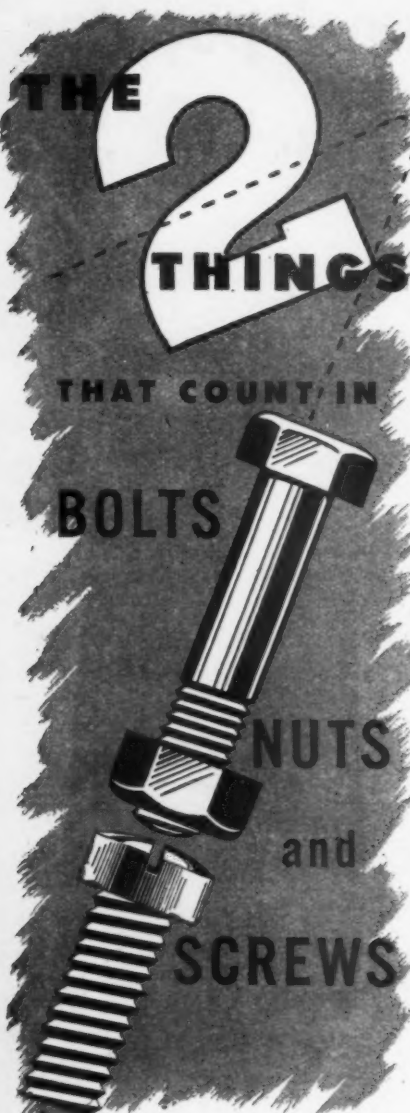
For complete information about the DeWalt line of world-famous radial power saws, write for our catalog.

DEWALT PRODUCTS CORPORATION

2011 Fountain Avenue

• Lancaster, Penna., U. S. A.





1. FAST ASSEMBLY

Bolts, nuts and screws made by General Screw Manufacturing Company are accurate, uniform, with clean threads and uniform heads; qualities that assure fast assembly.

2. LASTING LIFE

Careful inspection from raw material to finished product is your guarantee that the metal fastenings made by General Screw to your specifications bring long life and stay-tight qualities to your products.

Modern Facilities for Production Runs

Ideally set-up for long production runs. Our machines are modern and our management capable.



SEND YOUR ORDER TO

GENERAL SCREW
Manufacturing Company

1738 W. Monroe Street, Chicago 7, Ill., U.S.A.

(Continued from page 272)

Harry B. Hoyt, Purchasing Agent, New Haven Pulp & Paper Co., has been elected vice president of a subsidiary company, Bartgis Bros. Co., of Ilchester, Md.

Howard E. Lemmerman has been named Purchasing Agent for the Midland Steel Products Co., Cleveland, Ohio, manufacturers of automobile frames. Formerly he was associated with the Cleveland Automatic Machine Co.

Karl S. Lindauer succeeds William E. Root as Purchasing Agent for the Plymouth Locomotive Works, Division of The Fate-Root-Heath Co., Plymouth, Ohio, who has joined the Naval service and is now stationed at Great Lakes Naval Training Center.

W. D. Fuller, formerly Purchasing Agent and traffic manager for W. P. Fuller & Co., Seattle, Wash., has been made Assistant Purchasing Agent for all Fuller stores in the jobbing department, at San Francisco, Calif.

William Fischer has been made Assistant Purchasing Agent and manager of the spare parts department, Colby Steel and Engineering Co., Seattle, Wash. He formerly was Purchasing Agent for the Pacific Iron & Steel Works which is no longer operating.

M. J. Crown is now Purchasing Agent for Sick's Seattle Brewing and Malting Co., Seattle, Wash., succeeding Mrs. Hazel Dwinell.

Reginald Bryans succeeds Roy C. Hull as Storekeeper and Purchasing Agent for E. I. du Pont de Nemours at DuPont, Wash. Mr. Hull is retiring after 31 years of service, 20 of which he was Storekeeper and Purchasing Agent.

R. A. Sims formerly Purchasing Agent for the Southwest Wheel Inc., Oklahoma City, Okla., has been made General Manager of Barton-Robison Convoy Co., of the same city.

H. A. Krampert has been made Purchasing Agent for the American Body & Trailer Co., Oklahoma City, Okla. He formerly was Purchasing Agent for Ray Stephens, Inc. of the same city.

R. L. Warren has been appointed Purchasing Manager of the Trailmobile Co.'s Oakley plant. Since 1944 Mr. Warren has been associated with The War Production Board in Detroit.

J. R. Laughlin has been named Purchasing Agent for Tokheim Tank & Pump Corp., Fort Wayne, Ind. In his new post Mr. Laughlin will work under L. M. Schwartz, Manager of Purchases and Stores. He has been with Tokheim since September, 1936, starting in the credit and collection department. In April, 1941, he became assistant manager of purchases and stores, which post he held until last February when he went to Indianapolis with the Tokheim subsidiary.

J. H. (Jep) Leonard, genial executive secretary of the Purchasing Agents of New York, was guest of honor at a dinner commemorating his "first 25 years



Executive Secretary J. H. Leonard
New York Association

of loyal and efficient service" to the New York Association and its members at the Downtown Athletic Club, 19 West St., New York City, Wednesday evening October 24th. The evening was marked by the absence of speeches, and featured by little entertainment and plenty of good fellowship. The committee in charge of the affair consisted of A. B. Acker, E. B. Fiellis, Walter Hoffman, Park Lamborn, George Plate, C. B. L. Townley and Howard Van Cleef.

Mrs. Glad Bower has been officially appointed to the position of Purchasing Agent, Orange County, Santa Ana, Calif. She had been serving as acting purchasing agent for the past year.

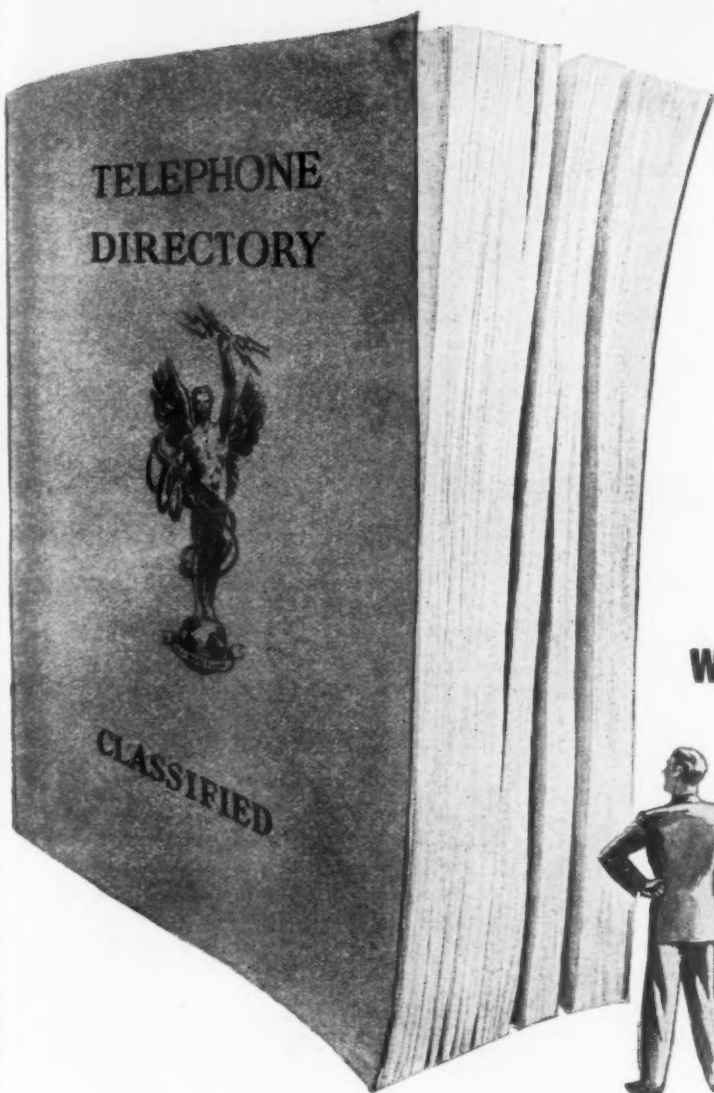
J. W. Johnston has been named Purchasing Agent and general assistant to the director of purchases, Atlas Powder Company, Wilmington, Del. He joined Atlas in 1928 when that company acquired Duratex Corporation, and has been continuously associated with the purchasing department. The retirement of Walter S. Morse, assistant purchasing agent, was also announced.

Col. Joseph L. Ernst has returned to his post as Purchasing Agent for the Rochester Board of Education after almost five years of service with the Army. Col.



Ernst, who was in the Quartermaster Corps, served as assistant to the general Purchasing Agent, U. S. Army Services of Supply and Army Forces in the Far East. For "exceptionally meritorious conduct", Col. Ernst had been cited by Gen. Douglas MacArthur for the Legion of Merit award.

(Continued on page 276)



when a brass shipment's needed

fast!

IT'S a wise purchasing agent who calls Chase for brass, particularly when stocks are needed in a hurry. Chase is equipped (see listing below) to render a complete sales service in your locality, and can usually ship directly, from local warehouse stock, enough brass to keep your plant operating until the larger mill order arrives. Save time in emergencies, or *anytime*—phone your nearest Chase Warehouse or Sales Office.

You may find it helpful to have our new book, "Chase Free-Cutting Brass, Bronze and Copper." For free copy, address Dept. P-11.



Remember—CHASE SERVICE IS AS CLOSE AS YOUR PHONE



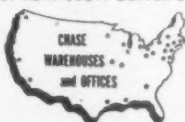
CHASE BRASS & COPPER CO.

—Incorporated—
Waterbury 91, Connecticut
SUBSIDIARY OF KENNECOTT COPPER CORPORATION

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BOSTON
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CINCINNATI
CLEVELAND
DETROIT
HOUSTON

INDIANAPOLIS
KANSAS CITY, MO†
LOS ANGELES
MILWAUKEE



MINNEAPOLIS
NEWARK
NEW ORLEANS
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PROVIDENCE
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SAN FRANCISCO
SEATTLE
ST. LOUIS
WASHINGTON†

† Indicates Sales Office Only

This is the Chase Network—handiest way to buy brass

Air Express speeds the delivery-day of YOUR NEW REFRIGERATOR



The day is here when industry is getting back into the production of consumer goods on schedule. And Air Express is greatly speeding the program.

War plants now engaged in making refrigerators or autos, for example, require new tools, dies, critical machinery and parts. Via Air Express, such material is obtained in a matter of hours — delivery speed that can gain days and weeks of conversion time.

Specify Air Express—a Good Business Buy

When time means man-hours saved, production gained, a customer made — Air Express "earns its weight in gold," as thousands of firms, large and small, have learned.

Shipments travel at a speed of three miles a minute between principal U. S. towns and cities, with cost including special pick-up and delivery. Same-day delivery between many airport towns and cities. Rapid air-rail service to 23,000 off-airline points in the United States. Service direct by air to and from scores of foreign countries.

AIR MILES	2 lbs.	5 lbs.	10 lbs.	25 lbs.
250	\$1.04	\$1.25	\$1.57	\$2.63
500	\$1.11	\$1.52	\$2.19	\$4.38
1000	\$1.26	\$2.19	\$3.74	\$8.75
2500	\$1.68	\$4.20	\$8.40	\$21.00



Write Today for interesting "Map of Post-war Town" picturing advantages of Air Express to community, business and industry. Air Express Division, Railway Express Agency, 230 Park Avenue, New York 17. Or ask for it at any Airline or Express office.

Phone AIR EXPRESS DIVISION, RAILWAY EXPRESS AGENCY
Representing the AIRLINES of the United States

(Continued from page 274)

Charles E. Thornton of West Roxbury, a veteran of 32 years service in the city of Boston Supply Department, has been named superintendent of that department. He succeeds F. P. Butler, who has retired on pension after 30 years service.

Robert Oakley, assistant cashier of a Lebanon, Tenn. bank and former Purchasing Agent of Shannon Drug Company, has been appointed state Purchasing Agent of Tennessee.

Harry E. Hurd succeeds Earl F. Graham as Division Purchasing Agent of Robert Gair Co., Inc., Haverhill Boxboards Division, Haverhill, Mass.

J. F. Barnes, manager of the Anderson, S. C. plant of the American Bakeries Co., has been named Purchasing Agent with headquarters in Atlanta, Ga. S. M. Lolis succeeds Mr. Barnes in his former capacity as plant manager.

R. M. Liversidge, formerly Assistant Purchasing Agent, has been named Purchasing Agent of the Lehigh Coal and Navigation Company and affiliated companies. Mr. Liversidge, who succeeds J. R. Bennington, who has retired after more than 36 years of service.



George A. Dursi, Purchasing Agent of William E. Wright & Sons Co., West Warren, Mass., has been admitted to practice before the Massachusetts Supreme Judicial Court in Boston. He is a graduate of Duquesne university and the University of Pittsburg, and holds degrees of bachelor of commerce, bachelor of science in economics, and the certificate of attainment.

He studied engineering with graduate engineers at Pittsburg, Pa., and completed his law apprenticeship with members of the Pittsburg and Ohio bar. He is a member of the American Bar association and the Engineers Society of Western Massachusetts.

Harry M. Cluff has been appointed Assistant to E. P. Scully, Director of Purchases, Engineering and Research Corporation, Riverdale, Md.

Henry G. Rosenberger has been named Purchasing Agent for the Eastern Zone of Swift & Company, with headquarters in Jersey City, N. J.

R. J. Newlon has been made Purchasing Agent for the Dearborn Stove Company, Dallas, Tex. He succeeds James Teague who was made general manager.

(Continued on page 280)

IMPERIAL TUBE FITTINGS

IMPERIAL TUBE WORKING TOOLS

...Everything You Need for Connecting Tubing or Working with Tubing

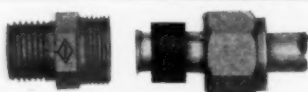
Imperial offers one of the broadest lines of tube fittings (over 1500 sizes, types and styles) —and the tube working tools to go with them. A great combination that makes it easy to do faster and better work. You'll find the right fitting and right tool in

the Imperial line for virtually any tubing connection job. Stocked by leading industrial supply houses everywhere. For helpful data on selecting tube fittings and tubing tools for your jobs write for Bulletin 342 on Fittings and Folder 347 on tools.



HI-DUTY FITTINGS

Exceptionally easy to assemble. Excellent where vibration is encountered. Extensively used on machinery, tractors, trucks, power units, general purpose work, etc.



FLEX FITTINGS

Ideal for applications where there is considerable vibration, minor tube movement, or possibility of mechanical shock. Can be used in place of flexible lines in many instances.



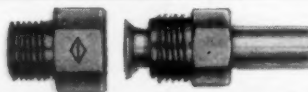
COMPRESSION FITTINGS

Widely used for connecting gasoline, grease, oil, vacuum and air lines because of their efficiency and simplicity.



FLARE FITTINGS

Make joints that will withstand high pressures. Joints stand up under severe tensile pull. Pioneered by Imperial.

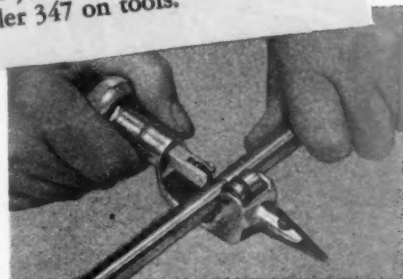


INVERTED FLARE FITTINGS

Used for automotive and general purpose work—low, medium and high pressure.

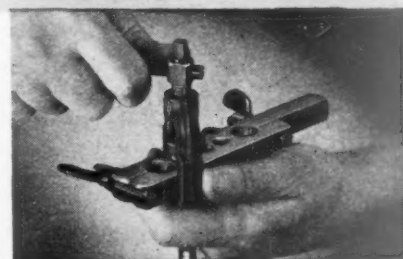
TUBE CUTTERS

Make quick, clean, right-angle cuts without flattening tubing. Also sawing vises for larger sizes.



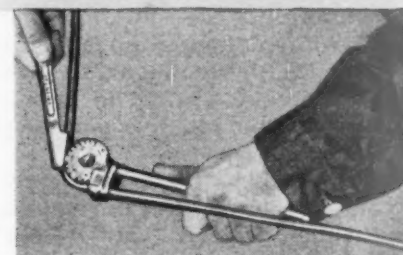
FLARING TOOLS

Make perfect flares quickly on soft copper, brass or aluminum tubing to make up S.A.E. flare joints. Also tools for double-flaring.



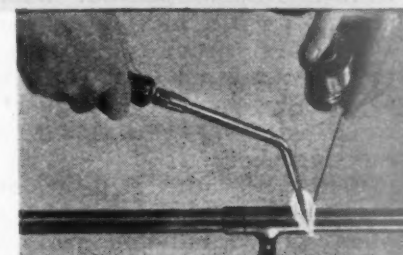
TUBE BENDERS

Form neat, accurate bends to a short radius. Spring-type benders and coil makers also available.



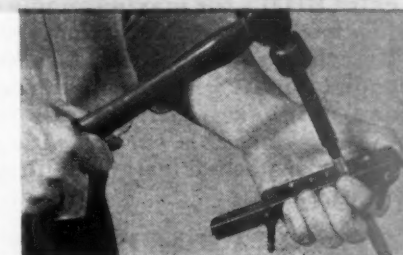
SOLDERING OUTFITS

Handle light, medium and heavy soldering and brazing. Burns acetylene, produces very hot flame.



SWEDGING TOOL

Enlarges one piece of tubing to fit over another—both are soldered to make a joint without the use of a fitting.



IMPERIAL

*Pioneers in Tube Fittings
and Tube Working Tools*



THE IMPERIAL BRASS MFG. CO., 512 South Racine Avenue, Chicago 7, Illinois



Whether snow flurries fill the air or roses are in bloom, New Yorkers can cut fancy figures at the Iceland Skating Rink. Here, for years—winter and summer, millions of skaters have been able to skate indoors in comfort.

What makes all this possible? A tremendous establishment stands behind the pleasure of the skaters. Thousands of tons of ice-making capacity go into maintaining the smooth expanse of this rink . . . controlling temperature, humidity, and heat. The requisite high condensing pressure depends upon the flat leather belts. The Duxbah Belt illustrated has been on the job five years—and is still in excellent condition.

Of course, the manufacture of ice is not one of your problems. But the same craftsmanship that went into the Schieren Leather Belts at the Iceland Skating Rink is available to you. What belting problems are you up against in your operations? No matter how small, large or unusual, the Chas. A. Schieren Company is prepared to solve them for you. Specialized experience gained through 75 years of industrial servicing insures you of belt installations that fit your exacting needs.

Schieren Leather Belts are made to resist water, oil, wear and other hazards which may be present in your plant. Their bull-dog grip on the pulleys delivers extra RHM's for maximum power utilization. Schieren Leather Belts cost no more than standard quality belts. But they save their cost many times over through added quality which reduces your maintenance charges and minimizes costly shutdowns.

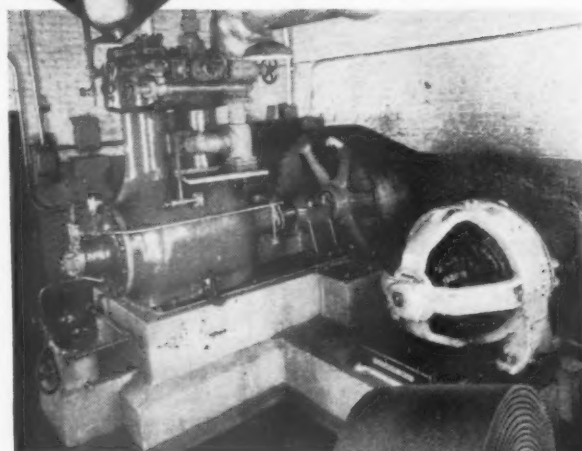
Now, does this cut ice with you? Let us quote on your prospective leather belting, packing or strapping requirements.

CHAS. A. SCHIEREN COMPANY

LEATHER BELTINGS • SPECIALTIES

HYDRAULIC PACKINGS

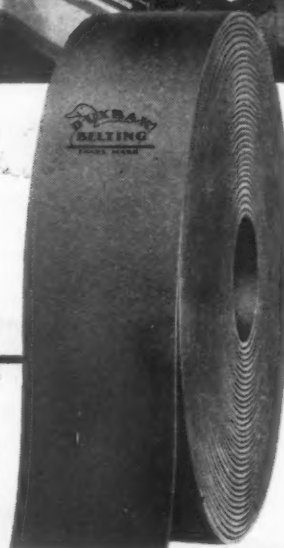
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Let us send you a Free book on SHORT CENTER DRIVE data which shows how pivot bases . . .

1. Give Automatic Belt Tension.
2. Boost Overload Capacity of Drives.
3. Eliminate any Possibility of Slip.
4. Increase Machine Output.

We are National Distributors of Rockwood Bases



HARSCH HAS EQUIPMENT— **FOR MAKING LARGEST CASTINGS**



A COMPLETE NON-FERROUS FOUNDRY for ALUMINUM • BRONZE • COPPER CASTINGS

Twenty-seven years experience—covering production for two wars as well as the intervening years — have built the Harsch Foundry into a thoroughly efficient, smoothly operating plant. Precision, labor saving equipment is used to speed production and turn out highest quality castings.

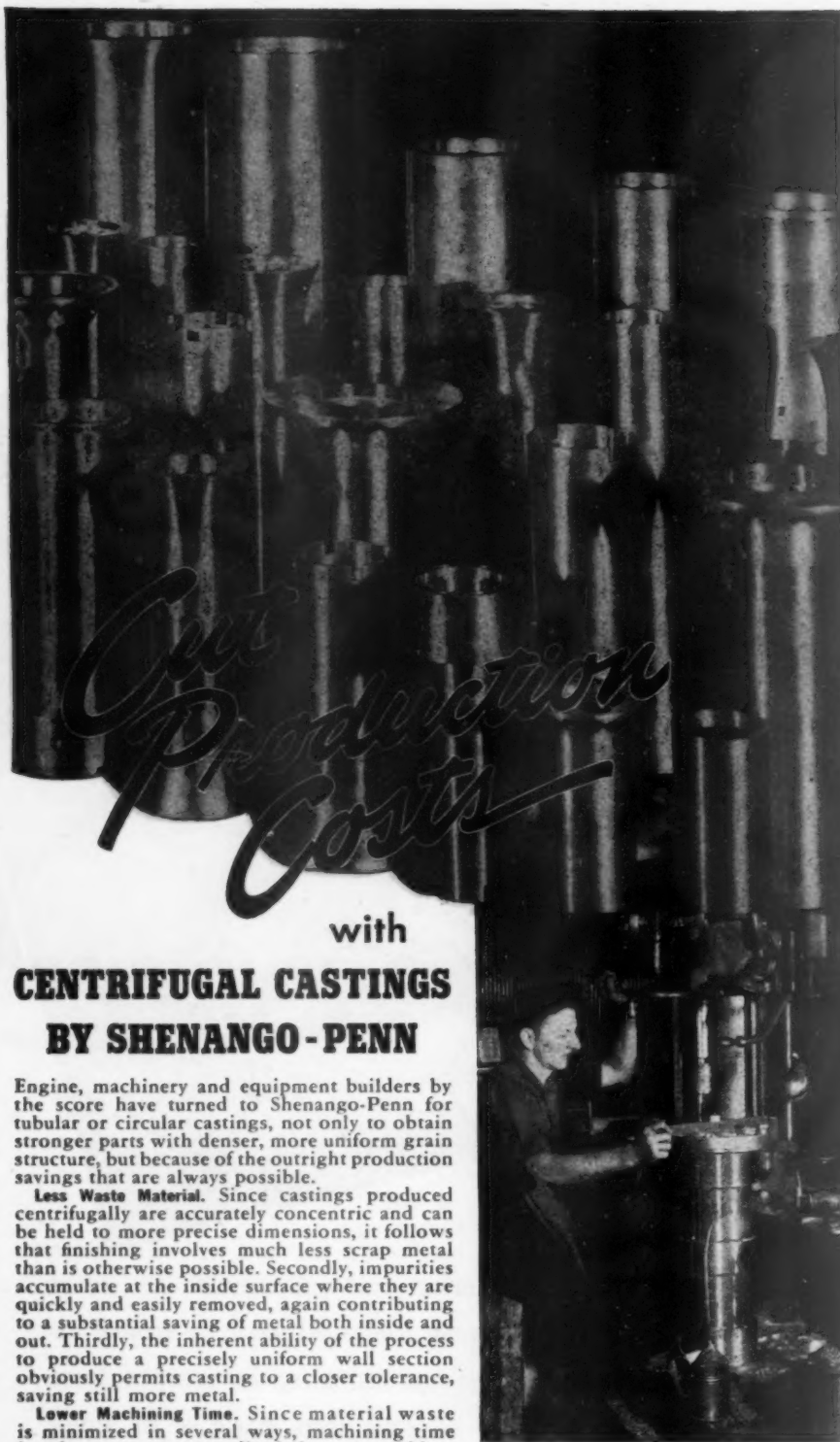
Both equipment and experience are more than adequate for producing a great variety of castings ranging in weight from 1 ounce to several tons each — in small lots or on a large production basis.

Why not select Harsch as your chief source of non-ferrous castings?

The JOHN HARSCH BRONZE and FOUNDRY Co.

Sales Offices: New York, Chicago, Detroit, St. Louis, Pittsburgh, Akron
12502 BEREA ROAD CLEVELAND 2, OHIO

ALUMINUM PERMANENT MOLD CASTINGS



with
**CENTRIFUGAL CASTINGS
 BY SHENANGO-PENN**

Engine, machinery and equipment builders by the score have turned to Shenango-Penn for tubular or circular castings, not only to obtain stronger parts with denser, more uniform grain structure, but because of the outright production savings that are always possible.

Less Waste Material. Since castings produced centrifugally are accurately concentric and can be held to more precise dimensions, it follows that finishing involves much less scrap metal than is otherwise possible. Secondly, impurities accumulate at the inside surface where they are quickly and easily removed, again contributing to a substantial saving of metal both inside and out. Thirdly, the inherent ability of the process to produce a precisely uniform wall section obviously permits casting to a closer tolerance, saving still more metal.

Lower Machining Time. Since material waste is minimized in several ways, machining time is, of course, correspondingly low—a combination saving that is attractive indeed.

Bulletin 143 gives complete information about Shenango-Penn centrifugal castings including other advantages and specifications of the various available alloys. Write to the Shenango-Penn Mold Company, 2453 W. Third Street, Dover, Ohio.

In addition to foundry facilities, Shenango-Penn is well equipped for all kinds of machining and finishing operations. Here flanges of bronze castings are shown being drilled.



**ALL BRONZES •
 MONEL METAL
 • ALLOY IRONS**

(Continued from page 276)

F. Bennet Bradshaw succeeds Fred J. Burnett as Purchasing Agent for the Egyptian Lacquer Company, New York, N. Y., the latter having been made chief chemist of the company.

C. W. Triplett succeeds L. D. White as Purchasing Agent for the American Manufacturing Company of Texas. Mr. White has been made district manager for the Engineering Sales Company of Dallas.

O. D. Nelson has been named Purchasing Agent of the Bowen Bus Lines, Fort Worth, Texas, to succeed J. M. Etzel.

A. L. Salt, retired president and chairman of the board of the Graybar Electric Co., New York, passed away at United Hospital, Port Chester, N. Y., September 29th, where he had been a patient for two weeks. He would have become 80 years



old on October 4th. Mr. Salt in 1906 was General Purchasing Agent, Western Electric Co., New York office, and in 1913 he was elected a vice president of the company. Until 1926 the Western Electric Co., besides manufacturing, purchasing and warehousing for the Bell Telephone System, was engaged in the distribution of electrical commodities to wholesale users. When Graybar was organized in 1926 to handle this phase of the business, Mr. Salt was elected president of the new company. He retired as president of Graybar in 1930, becoming chairman of the board, a post he relinquished in 1935. His first job with Western Electric was as office boy when he was 16 years old.

Walter H. Levy, for the past forty years Purchasing Agent for the California Packing Company, San Francisco, Calif., passed away September 10. He was an active charter member of the Purchasing Agents Association of Northern California, and an honorary member of the Gavaliers, past presidents' club of that organization.

John D. McGrath, Purchasing Agent and director of the managing board of the Whitney Chain & Manufacturing Co., Hartford, Conn., passed away at Hartford Hospital September 20th while undergoing a tonsilectomy.

Emery A. Doane, Purchasing Agent, New Castle (Ind.) Division of the Chrysler Corp., died at his home in New Castle, September 15th, death being due to a coronary occlusion.

Great Time Savers In Any Plant or Shop



8" COMBINATION
BENCH GRINDER

\$72.00

ALSO 6" AND 10" MODELS

There's no end to the uses for Black & Decker Bench Grinders...

Black & Decker Bench Grinders step up production all down the line—by making it easy to sharpen all tools quickly. And, spotted at handy locations about your shop or plant, they save steps and man-hours on an endless variety of grinding, wire brushing, cleaning, burnishing, buffing, polishing and finishing jobs.

What's more, Black & Decker Bench Grinders are engineered to get more done in less time. Powerful motors maintain efficient working speed under pressure.

Long wheel spindles and tapered end housings make it easy to get at the wheel with large or odd-shaped pieces. Tool rests and spark shields are adjustable. Grease-sealed ball bearings near spindle ends assure smooth operation. Advanced safety features protect your workers. And pedestals are made to fit all models.

Order Black & Decker Bench Grinders, Wire Wheel Brushes and other accessories from your nearby Black & Decker Distributor. And send for our catalog so you can check up on more than 100 other cost-cutting Electric Tools in the complete Black & Decker Line. Address: The Black & Decker Mfg. Co., 664 Pennsylvania Ave., Towson 4, Maryland.

MANY ATTACHMENTS FOR MANY USES

FINE GRINDING WHEELS
MEDIUM GRINDING WHEELS
COARSE GRINDING WHEELS
GRINDING WHEEL DRESSERS
FINE WIRE BRUSHES
MEDIUM WIRE BRUSHES
COARSE WIRE BRUSHES
LOOSE COTTON BUFFS
SPIRAL-STITCHED BUFFS

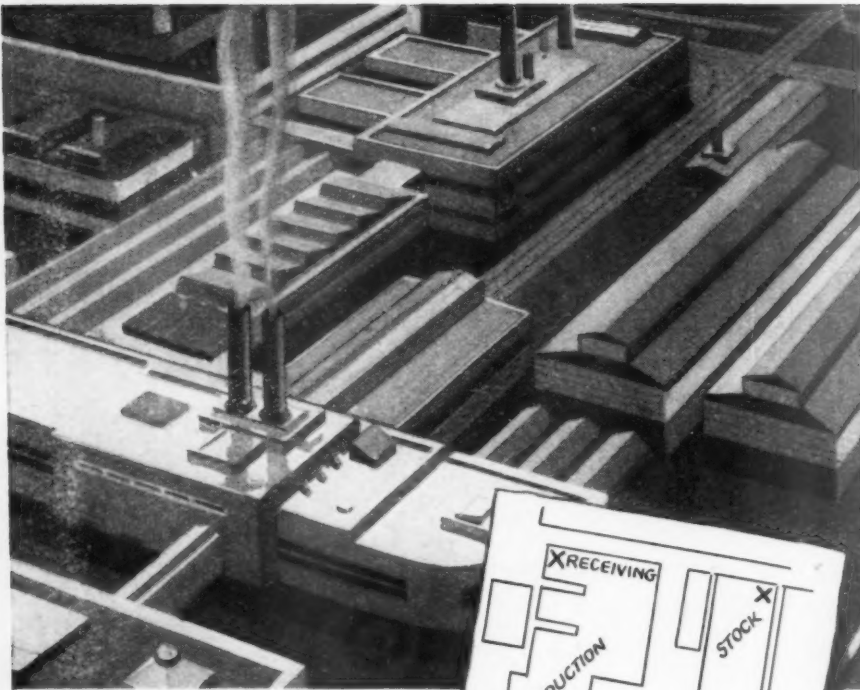
LEADING DISTRIBUTORS



EVERYWHERE SELL

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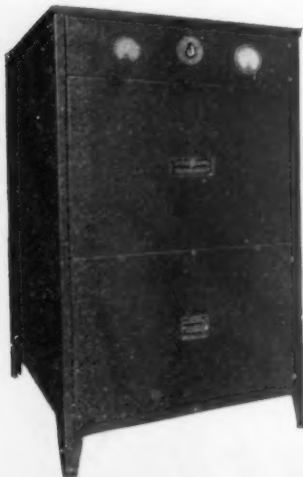
PORTABLE ELECTRIC TOOLS



Plan shows how G-E chargers can be located to charge electric truck batteries in their working areas. This saves time, labor and battery power usually wasted in returning trucks to a central charging station.

X marks the SPOT for a G-E BATTERY CHARGER

Gone are the days when it was necessary to ship electric trucks to a central charging station after long hauls or a hard day's work. Now you can charge batteries in truck working areas by simply "spotting" G-E Copper-oxide battery chargers at strategic locations where they are always ready to do a job. The savings in time, labor and battery power are obvious.



The charger is easy and economical to use. It's fully automatic so—all a user has to do is plug in the connections, turn on the switch and the charger does everything else. It shuts off automatically on completion of the charge and a built-in control prevents batteries from discharging back through the charger after the a-c current turns off.

There are G-E Copper-oxide chargers for lead-acid batteries, nickel alkaline batteries or combination chargers to accommodate both. G-E chargers have no moving parts other than the cooling fan hence, maintenance costs compared with other types of battery charging equipment are negligible. For full details write: Section A1156-77, Appliance and Merchandise Dept., General Electric Company, Bridgeport, Conn.

GENERAL  ELECTRIC

AMONG THE COMPANIES YOU BUY FROM

Edward Valve & Mfg. Co., Inc., Michigan territory. Leatherman & Mertz, Book Building, Detroit, Mich., have been named representatives for all of Michigan, excluding the upper peninsula.

Graybar Electric Co., New York. Harold P. Litchfield, commercial sales manager, has been made assistant general sales



E. F. Murphy

H. P. Litchfield

manager, having charge of Graybar sales in lighting, lamps, power apparatus, marine and signaling. E. F. Murphy succeeds Mr. Litchfield as commercial sales manager, continuing his former activities as eastern commercial sales manager.

Federal Products Corporation, Houston office. E. L. Stacey, southern Texas representative, is now located in permanent office at 718 Leeland Avenue. Previously he had been doing business from his home, because of shortage of office space.

Latrobe Electric Steel Company, Boston office. Robert S. Rose has been appointed district sales manager of the new sales office located in the Rice Building, 10 High Street, Boston, Mass.

Fairbanks, Morse & Company, Chicago, Ill. John S. King has been named acting manager of the Railroad division to



Arnold G. Brown

succeed C. H. Wilson, who is on extended leave of absence due to ill health. Arnold G. Brown, formerly assistant manager of the Pump division, succeeds Mr. King as manager of that division.

Norton Company, Abrasive Div., Worcester, Mass. F. W. Elya has been appointed district manager of the newly created Northeastern District with head-

(Continued on page 286)

VAN DORN WELDED BASES



FOR MODERN MACHINES

- 1 MODERN DESIGN**—Van Dorn welded steel fabrication lends itself to efficient, modern design . . . of machine bases, frames and other parts.
- 2 LESS WEIGHT AND BULK**—Unwieldy and needless mass and weight are eliminated in a Van Dorn welded steel base. This saves materials—facilitates handling and shipping.
- 3 MORE SHOCK PROOF**—Van Dorn welded steel units have all the inherent strength, uniformity, toughness of steel . . . the ability to withstand shock, strain, vibration and severe service.
- 4 ADAPTABILITY**—Van Dorn welded fabrication is adaptable. Design changes and improvements can be made at any time with a minimum of expense and waste. Different steels or alloys can be welded into the same structure.

Our experienced design engineers . . . complete fabricating and manufacturing facilities . . . specially trained workmen . . . are at your service. Write for illustrated booklet and complete information.

Builders of better iron and steel products for 75 years.



THE VAN DORN IRON WORKS CO.

2685 EAST 79TH STREET

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EVERLASTING

against the ravages of time

For countless ages, the Pyramids of Egypt have withstood the disintegrating forces of time and the elements. In comparison with the span of human life, the Pyramids are everlasting.

In applications without number, Harper bolts, nuts and other fastenings resist rust, corrosion and other destructive conditions. Compared with assemblies they hold together . . . or with common steel bolts . . . Harper Fastenings are everlasting.

everlasting fastenings

Harper stocks include over 4360 items of bolts, screws, nails, and other fastenings made of brass, bronze, copper, Monel or stainless (none of common steel). Specials made to order. Write for 104 page 4-color catalog.

THE H. M. HARPER CO.

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BRANCH OFFICES:

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You'll do a better shipping job with Orange Core Sealing Tape. Its quick-moistening, quick-sticking superiority speeds up production—helps get shipments out fast. Its sure-gripping tenacity and rugged quality protects them from damage en route—makes safe arrival more certain. Try Orange Core as soon as you can . . . it's the best tape you can buy, yet costs no more than ordinary tapes.

ORANGE CORE

Sealing Tape

AMERICA'S MOST POPULAR BRAND

Moore & Thompson • Div. Hudson Pulp & Paper Corp. • 220 E. 42nd St., N. Y. C.

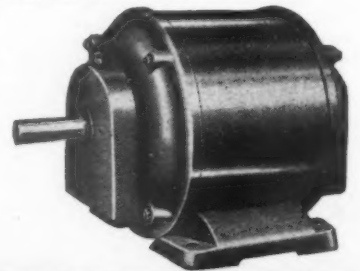
Design Engineers Specify

VALLEY

Ball Bearing MOTORS

Because -

- They offer more flexibility in power planning.
- They are built to meet unusual power loads and high temperatures.
- They meet all operating conditions where hazards of liquids, chips, etc., dropping into the motor are involved; as well as splash conditions.
- Being made in 1/2 to 75 h. p. sizes, they offer wide adaptability.



VALLEY

ELECTRIC CORPORATION

4221 Forest Park Blvd. • St. Louis 8, Missouri

WAYNE, Patricia E.

John Robert Powers...Model Agency
247 PARK AVENUE • NEW YORK

NAME	Patricia E. Wayne	HIPS	34"
DATE OF BIRTH	9-21-23	DRESS SIZE	12
HEIGHT	5' 7"	HAT SIZE	22
WEIGHT	115	SHOE SIZE	6 1/2
COMPLEXION	Fair	GLOVE SIZE	6 1/4
HAIR	Chestnut	NOT AVAILABLE FOR	Linger
EYES	Gray		
WAIST	24"		
BUST	34"	RATE	*****

Remarks:

custom-built for...

Distinctive product identity is your assurance of more sales — better sales. In no other container can you so easily enhance your product and protect your good name as in set-up boxes . . . these sturdy, custom-built containers give added value — they're your best bet for product protection, downright sales appeal, speedier line packaging, greater service, and ultimate economy. More of the better products are in set-up boxes.

NATIONAL PAPER BOX MANUFACTURERS

AND COOPERATING SUPPLIERS



FOR INFORMATION OR SERVICE

CONSULT THE NEAREST SET-UP BOX MANUFACTURER

THE REFLECTOR IS THE BACKBONE OF ANY LIGHTING SYSTEM...



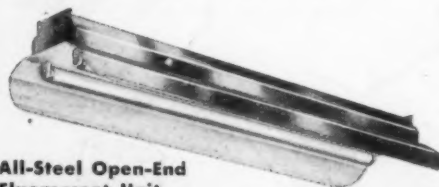
Skilled Lighting!

Helps make Skilled Hands!

Skilled work thrives on *Skilled Lighting*. Down goes the costly record of errors often due as much to blinding glare as uncertain shadow. Up goes production, both in quality and quantity, thanks to evenly distributed, shadow-free *Light* – the kind that Wheeler engineering has made famous throughout industry!

Better work and reduced costs are practically automatic when you install Wheeler Reflectors – the product of 64 years of specialized lighting experience. For they are engineered to get maximum illumination from *standard lamps*. And because of their efficient design, heavy duty materials, and high grade vitreous enameling, they stand up longer, require less maintenance.

Learn how you can lighten the load on your workers – and your operating costs. Send for catalogs showing complete line of incandescent and fluorescent lighting fixtures. **Wheeler Reflector Company, 275 Congress St., Boston 10, Mass.** Also New York. Representatives in principal cities.



**All-Steel Open-End
Fluorescent Unit**

Available for two or three 40-watt, or two 100-watt lamps. Broad wiring channel with accessible, enclosed ballast. Can be mounted from chain or conduit, individually or in continuous runs.



RLM Solid Neck Incandescent Reflector
Maximum lighting efficiency for either indoor or outdoor use. Expertly designed, ruggedly built. 75 to 1500 watts.

Distributed Exclusively through Electrical Wholesalers

Wheeler *Skilled Lighting* REFLECTORS

Made by Specialists in Lighting Equipment Since 1881

(Continued from page 282)

quarters in Worcester. R. J. Forkey, formerly abrasive engineer in the Syracuse territory will take over the western New York state area with offices in Rochester, previously covered by Mr. Elya. Robert Cushman from the Worcester office will take over Mr. Forkey's former territory.

International Derrick & Equipment Co., Columbus, Ohio. Ferguson Barnes, has been promoted to vice-president in charge of sales. H. L. Putnam has been ap-



H. L. Putnam

G. W. Walton

pointed to the sales organization as vice-president, Mid-continent direct sales. G. W. Walton has been advanced to vice-president-machinery sales. Mr. Barnes will be located in Columbus, and Mr. Putnam and Mr. Walton will be located at headquarters in Dallas, Texas.

Robins Conveyors Inc. and Hewitt Rubber Corp., Charleston, W. Va. office. R. U. Jackson has been named manager of the newly opened office in the United Carbon Building. H. N. Kepler, formerly sales engineer in the Washington office, has been made assistant manager. Nelson J. Reinhold will handle Hewitt sales.

Monroe Auto Equipment Company, Chicago office. Donald L. Whitehouse, formerly assistant manager of the Washington office has been made manager of the new Chicago railway division office at 3001 Willoughby Tower Building.

Sylvania Electric Products Inc., Chicago office. B. K. Wicksrum has been pro-



moted to Mid-Western sales manager with headquarters at 135 South LaSalle Street. Previously he was Pacific Coast sales manager.

United States Gauge Company, Sellersville, Pa. W. S. O'Connor has been promoted to national field sales manager to assist L. L. Corcoran, sales manager.

(Continued on page 288)

THEY FINISHED THEIR JOB . . .

Let's Finish Ours



This advertisement contributed by the

BOSTON WOVEN HOSE AND RUBBER COMPANY · CAMBRIDGE, MASS., U.S.A.



Effective fire protection is a "must" to insure uninterrupted development of production needed to win and hold leadership in big peace-time markets. If your plant presents tough fire hazards, call on a Cardox representative *now* for practical help in safeguarding vital operations, equipment and materials.

These fire protection specialists are backed by the full resources of the Cardox Research Division and Engineering Department. They will bring to your problem the wide experience gained in developing fire extinguishing systems that have set a new high standard of protection for many of the most severe hazards in American industry. Their analysis will cover all engineering factors involved. It will include a careful study of the nature of each hazard . . . fire characteristics of combustibles and operations . . . type of application, and quantity of extinguishing medium for most effective extinguishment. This analysis costs you nothing . . . may prevent a disastrous fire at the most critical period of your business history.

CARDOX Harnesses CO₂ in POUNDS or TONS

The features that have made Cardox Fire Extinguishing Systems so outstanding



are many: For example, Cardox harnesses carbon dioxide in *pounds* or *tons*, and makes this fast, inexpensive, non-damaging extinguishing medium equally effective for large or small hazards. Furthermore, through engineered application and control, the well-proved advantages of carbon dioxide are given enhanced extinguishing performance that includes increased cooling effect, effective projection through relatively great distance, and uniform extinguishing characteristics regardless of plant or atmospheric conditions.

Before fire strikes to endanger your post-war plans, find out how Cardox has broadened the performance scope of carbon dioxide.

Drop us a line for Bulletin No. 25115 and an analysis of your fire hazards.

CARDOX CORPORATION

BELL BUILDING • CHICAGO 1, ILLINOIS

New York • Philadelphia • Washington • Pittsburgh
Cleveland • Detroit • Houston • Seattle • San Francisco
Los Angeles • San Diego



Cardox CO₂ is supplied instantly in pounds or tons from a single Storage Unit containing 500 pounds to 125 tons at controlled low temperature of 0° F. and 300 p.s.i.

(Continued from page 286)

H. M. Bear will succeed Mr. O'Connor as district manager of sales territory covered by the New York office.

Monsanto Chemical Company, St. Louis, Mo. S. U. Shorey has been appointed assistant manager of plasticizers and resins sales. B. B. Langton has been named assistant manager of intermediate sales.

Pittsburgh Plate Glass Company, St. Joseph, Mo. L. J. Carney has been promoted to manager of the branch office.

Pittsburgh Plate Glass Company, Chicago office. R. M. Simpson has been named sales representative of the Columbia Chemical division. He will be located at 1721 Tribune Tower Building.

Ingall Iron Works Co. and Steel Construction Co., New York office. Kenneth H.



Gayle Jr. has been elected vice-president in charge of northern division sales and exports. Headquarters at 1 East 42nd Street.

Square D Company, Detroit office. Walter H. Bodle has returned to his former activities as assistant to the merchandise sales manager, after having opened and managed the Seattle plant. Ernest R. Walton has succeeded Mr. Bodle at Seattle.

Philco Corporation, Atlanta office. Charles F. Greene has been appointed representative of the Storage Battery Division.

Montgomery Elevator Company, San Francisco office. John E. Stolz, has been named district manager, with offices at 214 Front Street.

Cleveland Automatic Machine Company, Cincinnati territory. William J. Chovanec, formerly a member of the engineering staff, has been made district sales manager.

Wheelco Instruments Company, St. Louis office. R. P. Campbell has been appointed district manager for the territory comprising Missouri and Southern Illinois. Mr. Campbell's office is at 3909 Olive Street.

Thomas C. Barber has opened offices in Chicago for the exclusive sales and engineering representation of the Buhr Machine Tool Co., the Kelly Reamer Co., Carbide Fabricators Co., and Morse Tool Co.

(Continued on page 290)

PENN SALT LIQUID CHLORINE

A
36 YEAR RECORD
OF SERVICE IN THE
PULP AND PAPER
INDUSTRY

Write for full
information on Penn
Salt Liquid Chlorine



PENNSYLVANIA SALT
MANUFACTURING COMPANY
Chemicals

1000 WIDENER BUILDING, PHILADELPHIA 7, PA.

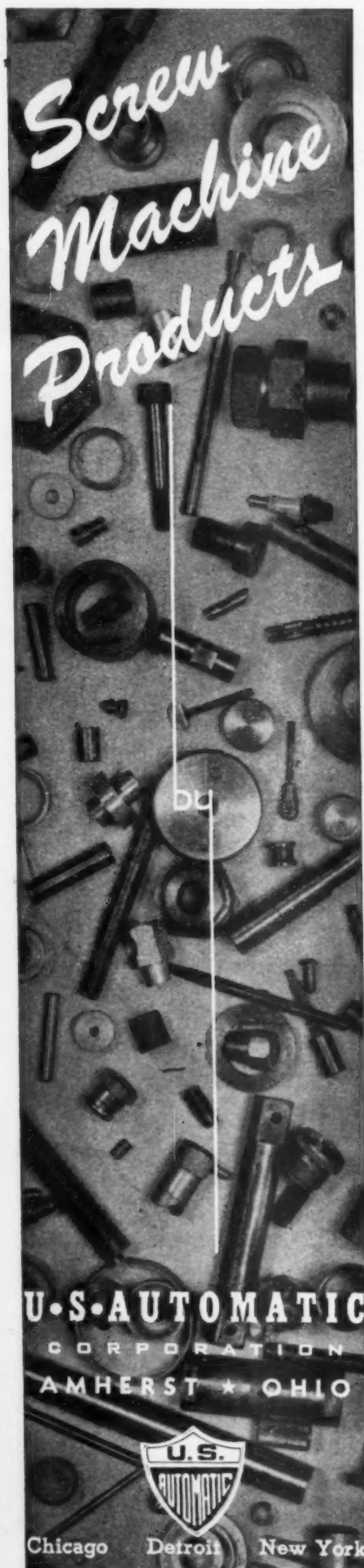
NEW YORK • CHICAGO • ST. LOUIS • PITTSBURGH • CINCINNATI • MINNEAPOLIS • WYANDOTTE • TACOMA

Some of the Products Manufactured by Penn Salt:


ACIDS, Sulphuric, Muriatic, Hydrofluoric;
Hydrofluosilicic, Nitric • AMMONIA • ALUM,
Sulfate of Alumina • HYDRATE OF ALUMINA
• BLEACHING POWDER • AMMONIA,
Anhydrous and Aqua • CARBON BISULPHIDE
• CARBON TETRACHLORIDE • CAUSTIC
SODA • CORROSION-RESISTING CEMENTS
• LIQUID CHLORINE • FERRIC CHLORIDE •
FLUORIDES AND FLUOSILICATES • HYDRO-
GEN PEROXIDE • *KRYOLITH Flux and
Opacifier • *KRYOCIDE Insecticide • *OR-
THOSIL AND *PENSALT METAL CLEANERS
• SAL AMMONIAC • SODIUM ALUMINATE

*Trade-marks Reg. U.S. Pat. Off.

*Screw
Machine
Products*



U.S. AUTOMATIC
CORPORATION
AMHERST * OHIO



Chicago Detroit New York

(Continued from page 288)

Raybestos-Manhattan, Inc., Manheim, Pa. Jack Cole has been made sales manager of the Packing Sales Department of its Industrial Sales Division. Mr. Cole has served with the government since 1942, and from 1939 until that time, he had been district manager of Industrial Sales Division in Cleveland.

Trimount Instrument Company, Pittsburgh and Detroit areas. M. S. Jacobs has been appointed sales representative in the Pittsburgh district with offices in the Bessemer Building. M. N. Weber has been named Detroit representative with headquarters at 2450 Hubbard Street.

Weatherhead Company, Cleveland, Ohio. Leonard C. Doolittle has been made Industrial Hose Sales engineer. Major Doolittle has just returned from three years of service in the U. S. Air Corps.

Plomb Tool Company, Detroit, Mich. George M. Ryerson has been promoted to the position of regional sales manager with headquarters at 455 Book Building.

Joseph T. Ryerson & Son, Inc., Chicago plant. C. S. Hegel has been named mana-



ger of the Special Steels department. Previously he was Special Steels representative at Milwaukee.

B. F. Goodrich Chemical Company, Cleveland, Ohio. J. H. Field, Jr. has been named manager of technical service for the sales staff on plastic materials. M. S. Moulton has become manager of geon coating and film materials for the paper and textile fields.

Allis-Chalmers Mfg. Company, Milwaukee, Wis. R. N. Landreth has been appointed assistant to the vice-president of the general machinery division. Mr. Landreth, who has been special representative, will continue to reside in Washington, D. C., and will function on assignments from Milwaukee.

B. F. Goodrich Company, Boston office. J. M. Cooney has been appointed district manager of the Industrial Products sales division. He succeeds Geo. H. Wood, retired.

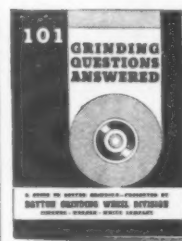
Allen Manufacturing Company, Connecticut and New York areas. C. G. Bellerose has been named field representative for Connecticut. R. D. Case, Jr. is new representative for the northern end of New York state.

(Continued on page 292)

101

Grinding Questions Answered

By Allen Steele, Manager,
Dayton Grinding Wheel Division
SIMONDS WORDEN WHITE COMPANY



Now in its fourth edition . . . 101 answers to many of the more common grinding problems . . . indexed for quick, easy reference. Sent without cost to anyone interested in better grinding practices. Used as a guide by many of the nation's largest plants. Just fill out and mail the coupon below.

Get Your **FREE** Copy Today

DAYTON GRINDING WHEELS

SIMONDS WORDEN WHITE COMPANY
706 Negley Place, Dayton 7, Ohio

IN
CLEVELAND
IT'S THE



HOME OF THE FAMOUS

**VOGUE
ROOM**

1000 ROOMS WITH BATH
RADIO IN EVERY ROOM
FIVE FINE RESTAURANTS
Central Downtown Location

how relays help to make coffee *Automatically*



The brewing of fine coffee is an art that has been reduced to a science by All-Lite Mfg. Co., of Chicago, manufacturers of the Urn-O-Matic which automatically controls the brewing process.

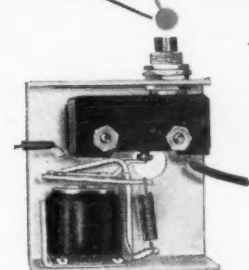
Relays BY GUARDIAN Control the Brewing Cycle

To make coffee by this method, the chef determines the amount of coffee desired and adjusts the dial accordingly then presses a push-button. This closes a snap-switch connected across the main circuit. When the predetermined amount of coffee is made a volume regulator actuates a Guardian relay mounted in combination with the snap-switch. An arm on the relay's armature returns the snap-switch to the "off" position and stops the brewing operation.

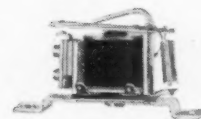
A simple application, yet one that calls for an accurate, dependable, sensitive relay. Operating on low voltage the relay must withstand jarring and heat, and possess high moisture resistance—specifications that you might ordinarily believe call for a specially built relay.

Actually the relay is Guardian's standard Series 120 with all the standard advantages of quick delivery, lower cost, available replacements.

Whether your application calls for a standard or a special relay, write us. Guardian engineers will recommend a unit most suitable to your needs.

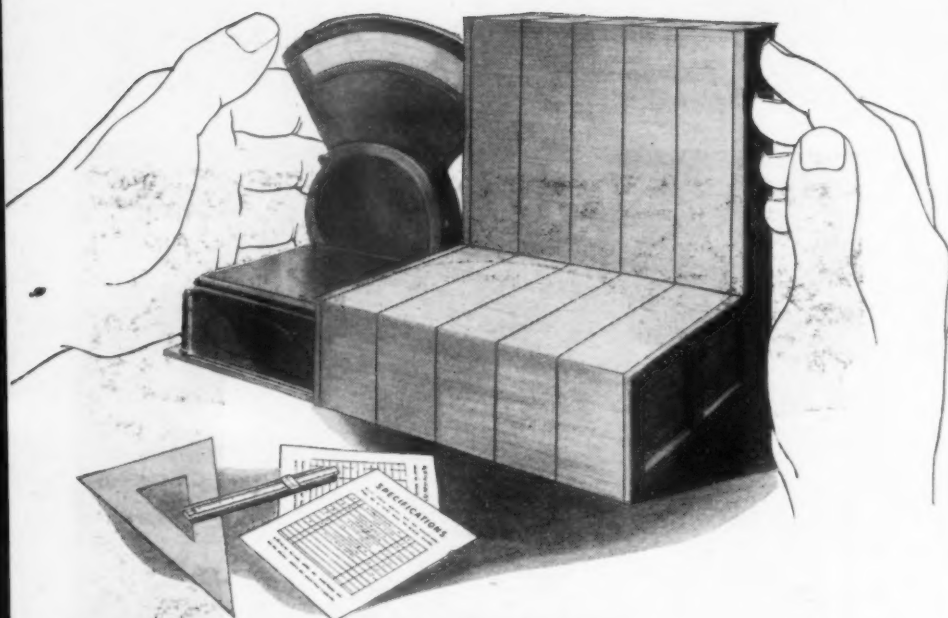


Relay and Snap Switch



Series 120 A.C. Relay

GUARDIAN  ELECTRIC
1635-M W. WALNUT STREET CHICAGO 12, ILLINOIS
A COMPLETE LINE OF RELAYS SERVING AMERICAN INDUSTRY

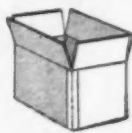


GENERAL ENGINEERED Product Protection

GENERAL'S "Part of the Product" Plan

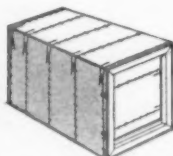
GENERAL Engineered Shipping Containers are designed to the product. Frequently the product and the container come off the production line together—as a unit.

Result: You save space, materials, man-hours and packing costs.

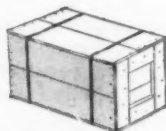


General Corrugated Box

Send for "The General Box" — this booklet illustrates General Box Company's "Part of the Product" Plan.

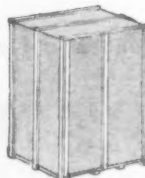


General All-Bound Box



General Nailed Box

General Cleated Corrugated Container



General Wirebound Crate

... cues and clips and bric-a-brac, oranges and rings*—whatever the item may be, GENERAL Engineers are experienced in designing a better, more efficient container. Actually, they've designed lightweight, compact shipping containers for hundreds of products—from delicate laboratory instruments to heavy machines and major appliances.

Write us today... our engineers will be glad to tell you about our "Part of the Product" Plan. It's an important story, a profit story—it's a story that means increased production of *your* products, substantial savings in packing material and space, reduced shipping and handling costs. There's no obligation, of course.

*Apologies to Lewis Carroll.

ENGINEERED SHIPPING CONTAINERS

General BOX COMPANY

GENERAL OFFICES: 48 West Illinois St., Chicago 10, Ill.
DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon.
Continental Box Company, Inc., Houston, Dallas.

(Continued from page 290)

Philco Corporation, Detroit office. R. D. Birge has been named sales representative of the Storage Battery division.

Ampco Metal, Inc., Tulsa and New Orleans offices. N. A. Doolittle, 1850 East 16th Place, Tulsa, Okla., has been appointed representative in Oklahoma, Southern Kansas, and Southwestern Missouri. W. W. Swan, Carondelet Building, New Orleans, La., has been assigned a number of counties in Southeastern Texas in addition to the states of Louisiana, Alabama, and Mississippi that he has been previously covering.

Page Steel and Wire Div. of American Chain & Cable Company, Inc., Detroit office. E. B. Brant and W. R. Stephens, representatives formerly at Monessen, Pa., will make their headquarters in the new sales office located in the General Motors Building.

Heppenstall Company, Pittsburgh, Pa. Robert E. O'Brien has been named a member of the sales organization.

Osborn Manufacturing Company, Cleve-



land, Ohio. Robert H. Boyer has been named sales engineer.

Jessop Steel Company, Washington, Pa. W. L. O'Brien has been promoted to manager of the Stainless Steel division. He has been district manager in Indianapolis.

Kennametal Inc., Latrobe, Pa. W. D. Turnbull, previously associated with Westinghouse Electric Corporation in several capacities, has been appointed sales manager.

Lea Manufacturing Company, Waterbury, Conn. Wesley L. Cassell has been appointed to the technical sales staff.

Sherwin-Williams Company, Cleveland, O. J. A. Hornaday has been appointed manager of national accounts. This important new work will be co-ordinated with similar work in Chicago.

Electronic Laboratories, Chicago, Ill. John W. Cyler and F. Theodore Hegeman have been named new additions to the sales department.

Timken Roller Bearing Company, Canton, Ohio. L. H. Gegenheimer, after a four-year leave of absence for war duties in Washington, is back with the company in his former capacity as sales engineer in the industrial division.

AVAILABLE NOW!

NORTHROP GAINES

Airlight

WHEELS



Airlight

**the only aluminum alloy
high capacity wheels**

CARRY HEAVIER LOADS • Heat generated by friction limits working capacity of all rubber-tired wheels. Rubber stays cooler on Airlight wheels, has a higher load-carrying capacity because the aluminum alloy hub dissipates heat 5 times faster than ordinary steel hubs. That's why an Airlight 12 x 3 wheel has a load rating of 1500 pounds.

SAVE YOU MONEY • Airlight wheels cut lubrication, maintenance, and replacement expense. Factory-packed Timken tapered roller bearings are built into the wheels so that grease cannot escape, even in temperatures ranging from subzero to more than 200° F. Experience has shown these wheels operate the equivalent of ten thousand miles without addition of grease.

NOISELESS AND CLEAN • Airlight wheels are ideal wherever quiet or cleanliness is important. With or without load, they operate practically without sound. Their aluminum alloy construction resists corrosion. In addition, the bright machine finish of the wheels improves the appearance of any vehicle. In plants handling food or beverages, in laundries and laboratories, in hospitals or other institutions—rustless, noiseless, light weight Airlight wheels add smooth efficiency to any hand- or power-drawn vehicle.

NORTHROP GAINES, INC.

1985 EAST 16TH STREET • LOS ANGELES 21, CALIFORNIA

Phone: PRospect 7766

Write today for complete details on these modern, versatile wheels. No obligation.

Northrop Gaines, Inc.

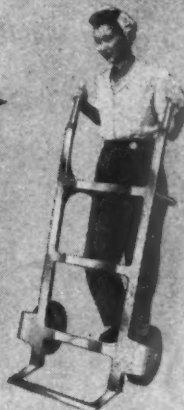
Dept. P-11



Airlight

HAND TRUCKS

Airlight hand trucks are easy to handle. They're light weight yet virtually unbreakable because of their aluminum alloy construction. Details available at your request.



WATERBURY

MOLDINGS OF MERIT



Let us tell you how you may use our organization just as if it were yours

**A MOST
UNUSUAL SERVICE
TO A
MANUFACTURER
SEND FOR NEW CATALOG**

*Compression
Transfer
Injection*

WATERBURY COMPANIES, INC.

FORMERLY WATERBURY BUTTON CO., EST. 1812

BUYER AVENUE

WATERBURY, CONNECTICUT

Washers and Stampings

ALL KINDS—FOR ALL PURPOSES!

No matter what your requirements may be . . . washers of any size or shape, any material or finish, in any quantity . . . we can supply or make what you want. Over 22,000 sets of dies available for producing standard and special sizes.

Our facilities are at your service.



WROUGHT WASHER MFG CO.

WORLD'S LARGEST PRODUCER OF WASHERS

2113 SOUTH BAY STREET • MILWAUKEE 7, WISCONSIN

INDUSTRIAL DEVELOPMENTS

Detroit White Lead Works. Corporate name has been changed to Rogers Paint Products, Inc. Plans for expansion call for added plant facilities, machinery and increased capacity. The company has been making Rogers Paints since 1880.

Sapphire Products Division of Elgin National Watch Co., Chicago, announces the operation of eleven nationwide engineering sales service offices, which extends the company's service to every major industrial market in the country.

Greenfield Tap and Die Corp., Greenfield, Mass. has issued a Spanish-English dictionary of technical terms peculiar to screw threads and threading tools industry.

Lt. Col. A. A. Watson has been named manager of the Norwood plant (near Cincinnati) of the Trumbull Electric



Manufacturing Co., Plainville, Conn. During the war he was located at Wright Field, Dayton, Ohio, in the maintenance division of the ATSC.

Bowser, Inc., Liquid control specialists, Chicago and Fort Wayne, has acquired the Industrial Temperature Cabinet equipment business of the Kold-Hold Company, Lansing, Mich. The low temperature equipment business will be consolidated with the Refrigeration Division of Bowser at Long Island City, N. Y. Equipment will be named "Bowser-Kold-Hold."

Linde Air Products Co. announce plans for the construction of oxygen and acetylene distributing facilities in Mobile, Ala., and Miami, Fla.

Western Electric Company has purchased property and will construct a new electronic components plant at Allentown, Pa., as part of the Bell System's two billion dollar post-war construction program.

National Battery Co., St. Paul, Minn. Company has recently purchased approximately eight acres of land from the Northern Pacific Railroad near the intersection of Lexington Avenue and Hewitt Street in St. Paul, upon which it plans to put up a new modern building as soon as construction costs are reasonably back to normal. National Battery

(Continued on page 298)

Walsh PUNCH PRESSES

Maximum production at bottom costs because of features based on nearly a half century of engineering and building punch presses.

Stability — heavy-duty semi-steel frames.

Inclinability — positively locks in any position.

Crankshafts — forged alloy steel, normalized and ground.

Bearings — crank and frame bearings are scraped in for proper alignment and operating accuracy.

Slide and Gibs — scraped in to .002 alignment between bolster plate and slide-bottom surface. Slide has solid surface for accurate alignment of die shoe. Die shank is clamped onto slide by means of circular clamping.

Safety Locks — on crankshafts to prevent operation of press while changing dies.

Flywheel — dynamically balanced; has cast running bushing between flywheel and crankshaft. Solid webs for safety.

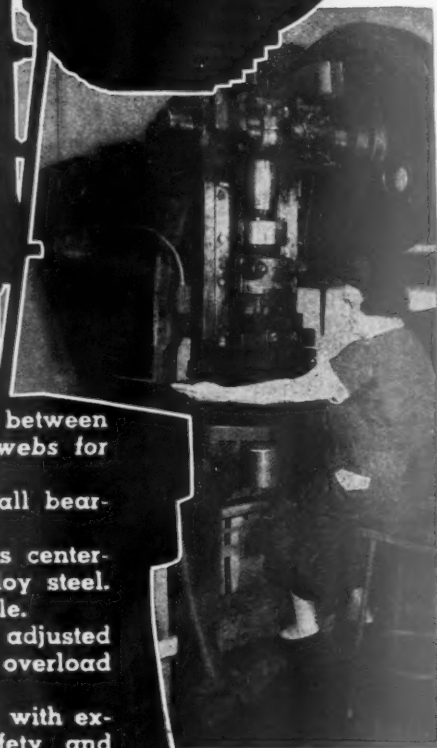
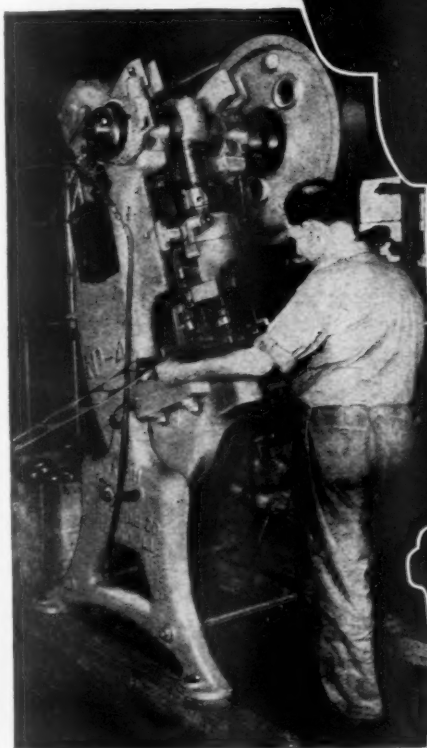
Lubrication — pressure fittings at all bearing surfaces.

Clutch — Positive action. All parts centerless ground, hardened, forged alloy steel.

Knockout — positive and adjustable.

Drive — Multiple "V"-belt. Can be adjusted while press is running. Motor has overload relay.

All Walsh Presses are equipped with exclusive patented Two-Button Safety and Non-Repeating Device. Available in all sizes for 6 to 80 tons capacity. Over-night service on maintenance parts. Qualified engineering service in all territories.



*The Best
in Power Presses
since
1907*

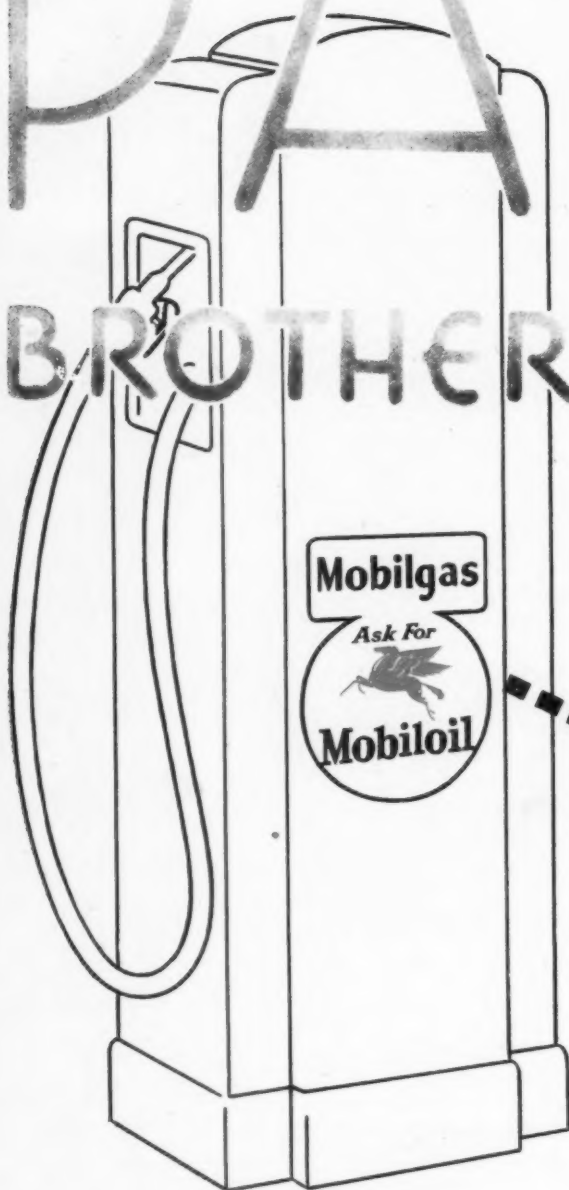
WALSH PRESS & DIE CO.

DIVISION OF AMERICAN MACHINE & GAGE CO.

Plant W. Kinzie St., Chicago (44). Offices in Buffalo, Elmira, Rochester, Syracuse and New York City, Milwaukee, Detroit, Minneapolis, Cleveland, Indianapolis, and Greenwich, Conn.

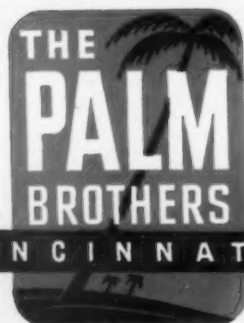
PALM

BROTHERS *Decals*



**EYE-APPEAL
PERMANENCY
ECONOMY**

A product marked with a Palm Brothers Decal is a product marked for success. See for yourself! Samples submitted without obligation!



Decalcomania Co.

CINCINNATI...12...OHIO...U.S.A.

Write today for your free copy of new Bulletin No. V-200.





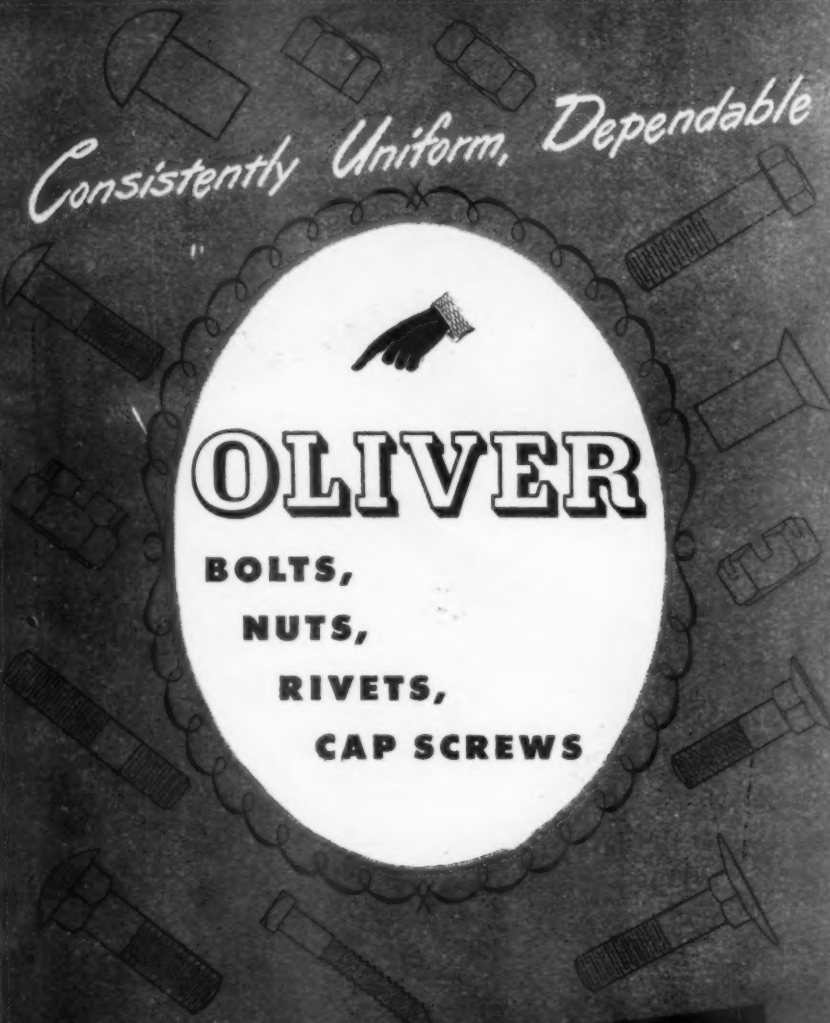
. . . just what the doctor ordered!

Mason Mailmasters don't promise a sure cure for every shipping problem — but they have rendered first-aid to pharmaceutical suppliers by offering a more convenient container for drugs and allied products.

Where shipping is a major factor, more and more people are depending on safe, speedy and economical Mason Mailmasters for their small packaging requirements. Their rugged strength, convenient sizes and exclusive wire fasteners adapt themselves equally well to assembly-line packaging or individual shipping.

MASON BOX COMPANY

Consistently Uniform, Dependable



OLIVER

**BOLTS,
NUTS,
RIVETS,
CAP SCREWS**

your best specification!

Experience teaches us to depend upon past performance and known qualities in specifying important fabrication items. Therefore, you make no mistake when you select OLIVER Bolts, Nuts, Rivets, Cap Screws and other industrial fasteners.

Being one of the largest and oldest firms in the industry, Oliver has the equipment and the skill to produce uniformly accurate, high quality fasteners with heads and shanks true to size, threads clean and accurate. For severe service or highly precise work, Oliver supplies fasteners that meet your most exacting requirements.

Let the nearest Oliver district specialist help you with your fastening problems.

OLIVER
IRON AND STEEL
Corporation

SOUTH 10th and MURIEL STREETS • PITTSBURGH 3, PA.

(Continued from page 294)

Company now has twelve manufacturing plants. Headquarters of its Industrial Division are at Depew, New York.

Medart Company, St. Louis, Mo., has purchased all of the Dodge cast tooth and mortise gear patterns and equipment. Dodge Manufacturing Co., Wishawaka, Ind. It can now furnish all of the gears formerly made by Dodge and gears shown in Medart Gear Catalog 56G. The Dodge Pattern Symbols will be retailed.

The Cooper Alloy Foundry Co., Hillside, N. J., announces the establishment of a sub-division devoted exclusively to precision casting of small intricate parts in carbon, stainless and alloy steels, monel metal and similar metals. Castings are said to require little or no machining. The auxiliary company is known as the Precise Castings Corp., Division of The Cooper Alloy Foundry Co., 123 Van Buren St., Newark, N. J.

Washington Steel Corp., Washington, Pa., a new company that will produce stain-



T. S. Fitch, President

less steel in both sheet and strip form, is announced. T. S. Fitch, formerly manager of the Composite Steel Division of the Jessop Steel Co. is president, and F. G. Gerard, formerly plant superintendent of the Eastern Rolling Mill Co., Baltimore, is vice-president.

Harco Tower Inc., 1180 East Broad St., Elizabeth, N. J., manufacturers of radio masts and towers, is new name of Harco Steel Construction Co., Inc.

Emerson Radio & Phonograph Corp., New York, announces the acquisition of 100 per cent of the authorized and issued capital stock of Radio Speakers, Inc., Chicago, Ill.

Bowser, Inc., Fort Wayne, Ind., acquired another wholly owned subsidiary in furthering of its post-war expansion program with the purchase of the Peterborough Lock Manufacturing Co., Ltd., Canada. The lock company manufactures a complete line of hardware products.

Columbia Machine Works, Inc., Brooklyn, N. Y., subsidiary of Maguire Industries, Inc., has turned from radar production to new line of centrifuge separators in which all parts coming in contact with the product are of stainless steel. The

(Continued on page 300)

SYLVANIA NEWS

INDUSTRIAL EDITION

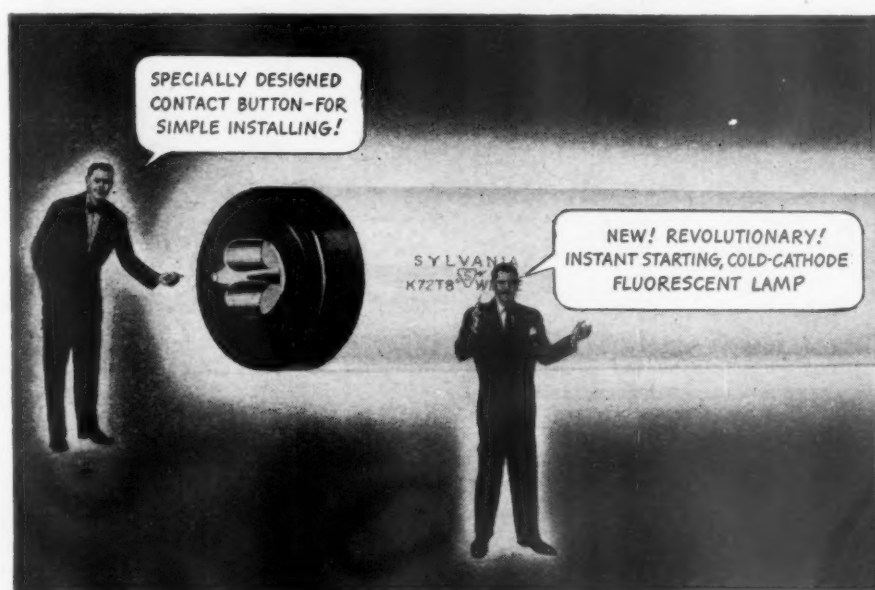
NOV.

Published by SYLVANIA ELECTRIC PRODUCTS INC., Salem, Mass.

1945

FIRST INSTANT START, COLD-CATHODE FLUORESCENT (K) LAMPS PRODUCT OF SYLVANIA RESEARCH

This Long-Lasting, Revolutionary Type of Lighting Helps Cut Maintenance Costs



*Newest of Sylvania Electric's developments—the K Fluorescent Lamp—
instant starting, cold-cathode, long-lasting.*

The newest of Sylvania Electric's developments—the K Fluorescent Lamp—marks one of the broadest, most revolutionary steps yet made in the lighting field.

Addition of these cold-cathode lamps to the regular line of fluorescent products makes Sylvania the first lamp company to offer a complete line of fluorescent lighting equipment.

Industry, in particular, will be interested in the following special advantages to be derived from installations of these lamps:

1. Because they will be *instant starting* and will have a *rated life of 10,000 hours—virtually unaffected by the frequency of on and off operation*—they are especially suitable for places where maintenance is either difficult or costly.

2. For further simplification of installation and maintenance, the base of the new lamp has a *specially designed contact pin* made to fit its lampholder (punched with a hole of similar design) in order to prevent lamps that might look like the K lamp from being inserted into the circuit.

These Sylvania K (cold-cathode) fluorescent lamps will be placed on a standard production basis. They will be available early in 1946 through the usual distribution channels, will be made in 72" and 96" lengths of 1-inch (T8) diameter, and will come in the standard white color. Soft white, daylight and a wide variety of other color lamps will be added gradually.

Lamp Designation	K96T8	K72T8
Nominal Lamp Length*	96"	72"
Bulb Diameter	T-8	T-8
Lamp Current, Milliamperes	120	120
Life Expectancy, Hours	10,000	10,000

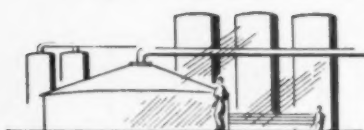
*Measured from back to back of the two lampholders.

SYLVANIA ELECTRIC

MAKERS OF FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES; ELECTRIC LIGHT BULBS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES

HUSSEY

in the FOOD and BEVERAGE INDUSTRY



LIQUORS

Copper has long protected the quality, flavor of brewery and distillery products.



CANDY

World's largest candymakers have found no substitute for the dependability of Copper.



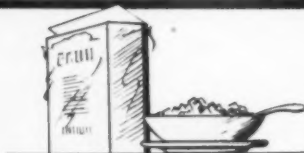
FRUIT JUICES

Copper's corrosive-resistant properties provide cleanliness and prevent product contamination.



BAKED GOODS

From flour mills to the consumer's table, Copper safely guards the product quality.



CEREALS

Copper plays an important role in cereal cookers and packaging equipment.



CANNED FOODS

Copper kettles and other copper preparation equipment are first choice with leading canners.

HUSSEY

The dependability of Hussey Copper and Copper products plays an important role in the vast food industry, as well as hundreds of other essential industries. Food must be protected from contamination, preparation equipment must be sturdy and strong, high heat conductivity is a "must," rust cannot be permitted, with operational economy the deciding factor—Hussey Copper combines all these vital qualities to best advantage.

Let Hussey engineers work with you now—on any problem involving the use of Copper—economically.

C. G. HUSSEY & COMPANY

(Division of Copper Range Co.)

ROLLING MILL and GENERAL OFFICES: PITTSBURGH, PA.

Warehouse Stocks in New York, Philadelphia, Cleveland, Cincinnati, St. Louis & Chicago
Contact your nearest warehouse.

(Continued from page 298)

machines will be called Patterson-Columbia separators, and will be made in four types—yeast separator, cream and milk clarifiers, lubricating and fuel oil, and for the handling of fruit juices and molasses.

Bates Expanded Steel Corp., East Chicago, Ind., has been purchased by Edw. S. Christiansen, who will continue the manufacture of expanded steel poles, joists and other structural building products. Mr. Christiansen is president of the company. He also is president of Aluminum Alloys of America, Inc., Magnesium Co. of America, Inc., and owner of Edw. S. Christiansen Company, 160 No. La Salle St., Chicago.

Heppenstall Company, Pittsburgh, Pa., announces plans for construction and equipment of \$170,000 research laboratory directly opposite the company's plant in Pittsburgh.

Taylor Fibre Co., Norristown, Pa., announces acquisition of property for its previously announced West Coast plant



William Rose

at LaVerne, Calif., about thirty miles east of Los Angeles. William Rose, who has served more than 25 years in the laminated plastics industry with the company, has been named manager of the new plant.

Aircraft Parts Development Corp., Summit, N. J., is changing its name to Hungerford Research Corp., according to announcement by Dan C. Hungerford, president. Specialization will continue in the application of powder metals and plastics to mechanical and electrical products. Company's laboratory has been moved into new building at Murray Hill, N. J.

Monroe Auto Equipment Co., Monroe, Mich., announces the purchase of a large new plant in Hillsdale, Mich., and expansion of the company's main factory and another recently acquired plant in Monroe.

American Phenolic Corp., Chicago, announces erection of new building to house plastics manufacture.

Industrial Hydraulics Corp., Painesville, Ohio, has recently established offices in the Cleveland Trust Building. W. T. Stephens is president and chief engineer, and W. B. McClelland is vice-president and sales manager.

(Continued on page 302)

IF IT'S LIGHT METALS CONSULT WITH COLGATE

If weight is a factor in any part of your product, why not consider the use of Aluminum, Magnesium or Stainless Steel, by using Colgate Engineered service for parts fabrication and assemblies?

It has been proven, by extensive war time practice, that sub-assembly when properly engineered cuts costs, speeds production and takes the headaches out of manufacturing.

Colgate has an organization with veteran experience, and many compressed years of "know how" in the fabrication of aluminum, magnesium and stainless steel parts and assemblies.

UNSHACKLED BY PRECEDENT

But, it is young in both personnel and ideas. Its success is due to refusal to be hobbled by precedent; and the courage to apply new methods in tackling the most difficult jobs.

It knows light metals. It is expert in parts fabrication and assembly work, taking details off the shoulders of the manufacturer who is looking for a top-notch organization, needs help in the solution of such problems, and who plans to use aluminum, magnesium or stainless steel.

So why duplicate or maintain, at excessive cost, a separate division of your own company, when you can get an organization ready to "go into action" at a moment's notice.

The Colgate Aircraft Corporation offers you an excellent four point plan that covers engineered service in the light metal parts fabrication and assembly field.

COLGATE OFFERS YOU:

1. Specialization in light metal industry. Experience in handling and fabricating sub-assembly parts.
2. A co-operative engineered service on every job by a trained engineering personnel.
3. Experience on both large and small jobs, either on parts, sub-assemblies, or complete products. Knowledge of quality control and working to the most exacting specifications.
4. Deliveries on time.

COLGATE *Aircraft Corporation*
AMITYVILLE, LONG ISLAND . . . NEW YORK

LIGHT METAL PRODUCTS DIVISION



Now is the time when good managers "clean house". Much that was traditional has given way to definitely progressive methods. This book illustrates many of the thousands of new ways dimensions can be controlled more precisely, more easily and more economically. Indicating Gages are shown in all dimensional classifications for quick reference. It is an instructive book from which you can learn new gaging methods. Write for a copy.

FEDERAL PRODUCTS CORPORATION
1144 EDDY STREET PROVIDENCE 1, R. I.

THIS BOOK Shows Ways to Insure Dimensional Quality and Cut Inspection Costs

Free

if requested on your
business letterhead.

CONCENTRICITY

Three concentricity of cylindrical parts are shown to illustrate the method of making correct inspection, which is the basis of an infinite number of circles in patterns, either external or internal, are located on the same axis. If they are so located, they constitute one cylinder, common to all diameters of the cylinder, and the diameter of the part may vary in its length. FEDERAL-built Concentricity Gages, whether designed for single or multiple inspection, are accurate and dependable, and they positively check concentricity—not diameter or roundness, which often are confused with concentricity.

MODEL 235 B-254

Here is a typical example of the accurate adaptability of the mechanical dial indicator system of gaging. On this model about 2,000 different combinations of gages and readouts are available.

MODEL 235 B-78

With the workpiece supported in a central position, the bearing force of which one hand with constant pressure, the Gage automatically measures 4 diameters for concentricity. This type of Gage is readily changed for larger or smaller workpieces and for checking at greater or lesser rates of speed on the part.

MODEL 235 B-371

Complete precision of a circular gage may bring 2 sensitive contacts, 2 bearings for dial indicator and 2 roller type force-measuring for the workpiece, the Gage is ideally suited for inspecting the concentricity of the inside diameter with the outside diameter of the workpiece.

MODEL 235 P-345

This Gage checks the concentricity of a hole in the end-view with the inside diameter of a cylinder, plane or track of a circular surface. It is a simple portable Gage and has a built-in dial indicator.

Models for Inspecting:
Angle • Concentricity • Depth • Height • Curvature • Length • Inside Diameter • Location • Thickness • Outside Diameter • Squareness • Thread • Width • and Combinations of Dimensions

7,000

YOU NEED THIS BOOK NOW

FEDERAL

PRECISION MEASURING INSTRUMENTS

DIAL INDICATOR TRUISM —

Feeling a measurement is Relative

— Seeing it is Exact.

★ **FEDERAL** ★

(Continued from page 300)

Teckna Co., Bayside, N. Y., fabricators of plastics, has acquired a new factory building at West Warren, Mass., for thermosetting and thermoplastic production.

Tube Turns, Inc., Louisville, Ky. Harry G. Howell, after 22 years' association



with General Motors, has been appointed vice-president in charge of production.

Allegheny Ludlum Steel Corp., Brackenridge, Pa. Clark W. King, who served more than four years with the Steel Division of the WPB, Washington, D. C., has been appointed executive assistant.

Lepel High Frequency Laboratories, Inc., New York, has acquired the business, good will and assets of the induction heating division of the Van Norman Co., machine tool manufacturers of Springfield, Mass. Latter has discontinued manufacture of induction heating equipment.

RECONVERSION NOTES

Standard of California, San Francisco, Calif. Plans for construction program totaling more than \$20,000,000 are announced by the company. This program, suspended by the war, will include additions and improvements to refinery, storage, distributing, producing and office facilities of the company and its domestic subsidiaries. In addition the company is expanding its tanker fleet, and is furthering its plans for drilling and exploration work and for expansions expected to develop in the next two years. The largest part of these expenditures will be at the Richmond and El Segundo refineries, where approximately \$15,000,000 will be expended. The program also covers warehousing and shipping installations, and new laboratories.

Westinghouse Electric Corp., Pittsburgh, announces that it will purchase property and buildings in Meadville, Pa., from Talon, Inc., for the production of industrial heating equipment. The entire Westinghouse line of industrial heating equipment will be produced there.

Monsanto Chemical Company announces that it has listed 151 construction and expansion projects involving an estimated

(Continued on page 306)



**SILVER BABBITT GIVES
"TIN BASE" PERFORMANCE
AT LESS COST**

Born of the tin shortage, it was developed as a substitute, but during three years of gruelling wartime service it has proved equal to tin-base babbitts—yet less costly.

N-B-M Silver Babbitt has found its place in peace-time economy and promises you considerable savings. Specify

**N • B • M
SILVER BABBITT**

**NATIONAL BEARING
DIVISION**

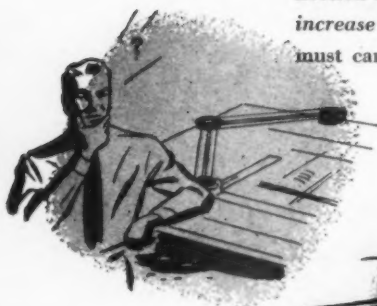
ST. LOUIS • NEW YORK

**AMERICAN
Brake Shoe
COMPANY**

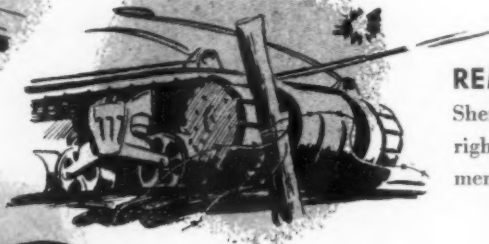
PLANTS IN: ST. LOUIS, MO. • PITTSBURGH, PA. • MEADVILLE, PA. • JERSEY CITY, N. J. • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.



★ Volute rate a tribute for their peace-time—war-time performance. They often succeed where other springs fail—on installations where a lot of deflection is needed, where the spring rate (*capacity per inch of deflection*) must increase as the spring is compressed, and in many places where a little spring must carry a big load—SO



STOP and check over your own product. Could it be improved with a volute spring?



REMEMBER the volutes on the General Sherman tank? They are in a tread assembly—right on the outside, taking a gruelling punishment in the mud and grit.



LISTEN for them the next time you pass an air compressor or a refrigerator unit. You won't hear them, but chances are they are there, busily—but silently—doing their job in the valve assembly.

Volute are tricky. Designing them and producing them takes real springability. And remember, it's *Muehlhausen* for real springability.



To improve product performance, use **MUEHLHAUSEN**
Booklet shows importance of Spring Design. Available on request to Muehlhausen Spring Corporation, Division of Standard Steel Spring Company, 673 Michigan Avenue, Logansport, Indiana.

Designed
SPRINGS

SCIENCE ASSURES UNIFORMITY and QUALITY

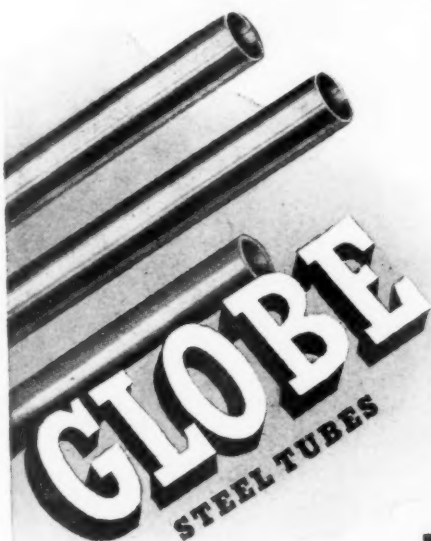
.....

GLOBE STEEL TUBES ARE AVAILABLE IN:

- Carbon Steels
- Alloy Steels
- Stainless Seamless
- Stainless Welded (Gloweld)
- Special Analyses
- High Purity Iron (Globeiron)
- High Ductility
- High Magnetic Permeability
- Annealed
- Cold Drawn
- Pressure
- Condenser and Heat Exchanger
- Mechanical
- High Temperature Service
- Aircraft
- Automotive
- Locomotive
- Structural
- Special Shapes and Forms
- Round
- Square
- Rectangular

WE can trust our trained eyes, bank on our long years of experience, and produce good tubes. But science — as applied through exact laboratory control of material and production — brings us closer to perfection, so, we make full use of science with its most up-to-the-minute instruments in all of our steel tube making operations. The uniformity and quality of Globe Steel Tubes is closely guarded by Globe's "House of Science" — complete chemical and physical laboratories, manned by engineers, metallurgists, and technicians who have long specialized in steel tube production.

Close cooperation with all Globe customers is also part of the picture. Whatever your tube requirements may be, specialized knowledge and skill helps to provide exactly what you need. It's a practical, profitable, scientific approach to steel tube problems — the plus you get when you specify Globe Steel Tubes.



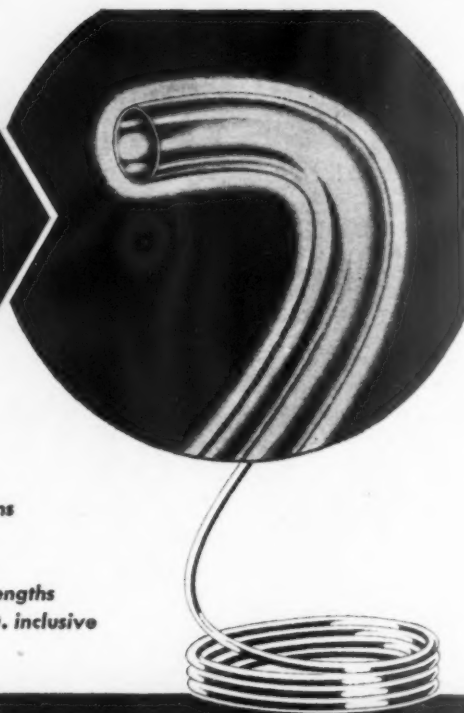
GLOBE STEEL TUBES CO. MILWAUKEE 4, WISCONSIN, U.S.A.

BRASS and for COPPER TUBING

You can always look to
PENN "SUPERIOR" SEAMLESS
TUBING for these important
advantages:

- × Uniform wall thickness
- × Bright finish inside and out
- × Annealed to your specifications
- × Easy bending
- × Ends sealed
- × Furnished in coils or straight lengths
- × All sizes from 1/16" to 1" O.D. inclusive

Write, wire or phone for data



PENN BRASS & COPPER CO.
Phone 35-111 ERIE · PENNSYLVANIA

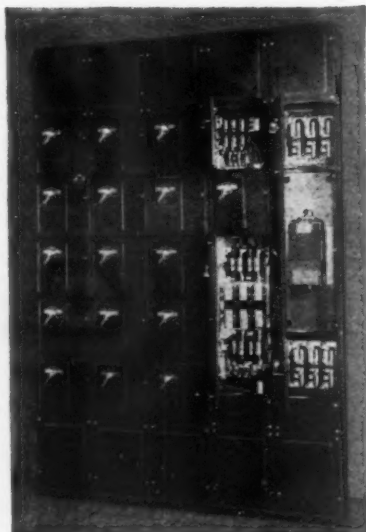
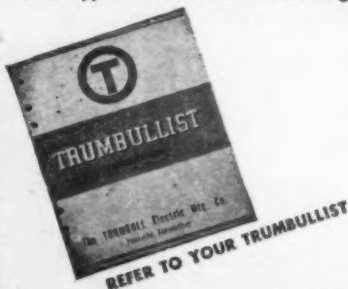
Manufacturers "SUPERIOR" BRAND
BRASS AND COPPER Tubing
1920 · 1945 ★ OUR 25TH ANNIVERSARY

Look to... TRUMBULL for CONTROL CENTERS

Trumbull Control Centers are assemblies of one or more standardized prefabricated vertical sections and units, grouped to provide a complete dead front, flexible, totally enclosed Control Center.

They are built from stock units without the need of special engineering and delivered ready for installation and operation. May be expanded or altered at any time to meet changing requirements.

There are two types: (1) Motor Control Centers, which provide for operation of motor circuits through push button stations, (2) Switchboard Control Centers, providing protection and operation for feeder circuits. Both types of units are interchangeable.



Illustrated and described in Bulletin No. 411

CALL YOUR TRUMBULL
Electrical Wholesaler

THE TRUMBULL ELECTRIC MFG. CO. • PLAINVILLE, CONN.
OTHER FACTORIES AT NORWOOD (CONN.) • SEATTLE • SAN FRANCISCO • LOS ANGELES

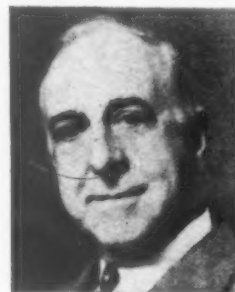
(Continued from page 302)

\$48,400,000 for consideration as part of its postwar program. Bulk of proposed capital investments will be made at existing plants.

Pittsburgh Steel Foundry Corp., Glassport, Pa., announces purchase of plant and equipment of the Fort Pitt Steel Casting Company at McKeesport, which will operate as Fort Pitt Division. T. F. Dorsey has been made general manager of the division. Since the first of the year he has been associated with Pittsburgh Steel Foundry in an assistant sales manager capacity. During the previous ten years he had been Fort Pitt's sales manager.

Pemco Corp., Baltimore, Md. Work is rapidly progressing on the installation of another continuous smelter unit and further improvements are being made on the four continuous units now in operation. It is conservatively estimated that these additions and changes will increase the capacity of the plant more than fifty per cent. This expansion is the first step in an ambitious reconversion program long planned for post war culmination.

Firth-Sterling Steel Co., Pittsburgh, Pa. Floyd Rose, formerly president of Vanadium-Alloys Steel Company, has been



President Floyd Rose

elected chairman of the board. Mr. Rose said that the company will add more melting and rolling units to its mill facilities, as well as research and metallurgical departments.

Walker-Turner Co., Inc., Plainfield, N. J. Announcement is made that construction has started on the addition to plant No. 2, which will add 75,000 square feet to its floor space. Plans are completed, also, for increasing the area of plant No. 1. Total area of new construction for the two plants will be 200,000 square feet.

Hercules Powder Co., Wilmington, Del. Announcement is made of a \$200,000 expansion of its Mansfield, Mass. plant which will triple production of hard resins. The majority of this increase will go into the manufacture of pentalyn resins, the pentaerythritol esters of rosin, pioneered by the company. Part of the plant has been revamped for the production of new type alkyd resins.

The Mengel Co., Louisville, Ky. A two-mile-long conveyerized furniture assembly and finishing system capable of carrying

(Continued on page 308)

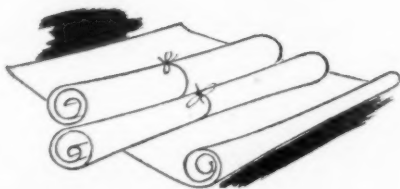


SIMONDS FLAT STEEL SPECIALTIES

...any shapes you want!

Simonds can produce flat steel specialties, hardened and ground, in any shape... with edges square or bevelled.

Send your blueprints and specifications to the nearest Simonds office, or direct to Fitchburg.



Send your Blueprints or specs

BRANCH OFFICES: 1350 Columbia Road, Boston 27, Mass.; 127 S. Green St., Chicago 7, Ill.; 416 W. Eighth St., Los Angeles 14, Calif.; 228 First St., San Francisco 5, Calif.; 311 S. W. First Ave., Portland 4, Ore.; 31 W. Trent Ave., Spokane 8, Washington.

**PRODUCTION TOOLS
FOR CUTTING METAL,
WOOD,
PAPER, PLASTICS**

SIMONDS

SAW AND STEEL CO.

FITCHBURG, MASSACHUSETTS

ROLL ON **ABBOTT** *Bearing* **BALLS**



... and

WIN

OVER FRICTION

For friction-free performance in heavy
duty assemblies or light and intricate
mechanisms, specify "ABBOTT" . . .

Carry the load as planned.

UNINTERRUPTED PERFORMANCE



ABBOTT *Bearing* **BALLS**
THE ABBOTT BALL COMPANY HARTFORD 10, CONN. U.S.A.

(Continued from page 306)

ten carloads of furniture at one time has been ordered at a cost of \$250,000. This whole system will work as a unit, turning out 50 complete three-piece bedroom suites an hour. When in full operation more than ten carloads of furniture will be riding the conveyor at any given moment. Many units of new equipment have already been installed and put into use, and the purchasing department is trying to speed delivery of additional material ordered.

Package Machinery Co., Springfield, Mass. Announcement is made that company will continue at peak production levels for at least two years with a production staff almost double that of pre-war years. Among the recent innovations developed by its engineering research and drafting department are automatic machines which fill and seal 70 quart paper-board oil containers per minute, and those which wrap 7½-pound coal blocks at the rate of 24 per minute.

Firestone Tire and Rubber Co., Fall River, Mass. An excellent example of im-



Lt. Comdr. R. S. Firestone, formerly Fall River plant president, holds the plastic helmet, and H. S. Firestone, Jr., President, displays the battery case.

mediate reconversion from war to peace manufacture has taken place at the Fall River plant in the shift from plastic combat helmet liners to automobile battery cases.

Mathieson Alkali Works, Inc., New York, N. Y. A new plant which will double the output of sodium chlorite is being added to the Niagara Falls production facilities. Construction cost of the new building is estimated at \$35,000 and its total cost at \$323,000.

Continental Can Co., New York announces that construction will begin on a large general line can plant in the Pittsburgh area next year. When the building is completed, general line and steel drum and pail equipment will be transferred from the present McKees Rocks and Canonsburg plants, as well as some crown cap machinery. Announcement closely follows company's plan to build another general line plant, one of the largest can-making plants in the industry, near Weirton, W. Va. The company has also begun construction of a

(Continued on page 310)




Replacement **BRONZE BUSHINGS**

*accurately machined
... ready for use*

By using these handy replacements you save time . . . and that's mighty important in these days of urgent production requirements. You save money also . . . two ways! These bushings cost you less than those machined in your shop from rough bar stock and your machine is back on the line . . . producing . . . sooner.

There are over 850 different sizes of plain replacement bushings carried in stock by Shook dealers . . . a size for nearly every standard application. Made from long wearing Shook 664 phosphor bronze, these bushings are precision machined to close tolerances . . . are ready to install.

Every Shook bushing is guaranteed to give complete satisfaction. Look to Shook for the finest quality bushings, bar stocks and babbit metals.



Shook

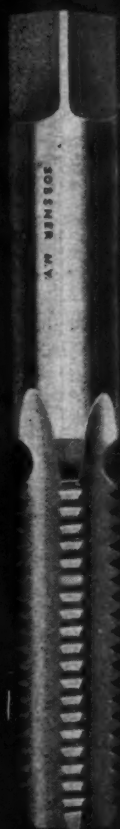
BUSHINGS • BAR STOCK • BABBITTS

BRONZE CORP.

GREENLAWN AND LAKE STREETS • LIMA, OHIO

Sossner

MIRROR FINISH TAPS



Give you:

- greater wear resistance
- finer part finish
- less friction

This Sossner developed finish is now included on ALL of our taps . . . after scores of unsolicited letters gave us ample proof of its superior performance.

TAPS • STEEL STAMPS • DIES AND MOLDS

SOSSNER

161 GRAND STREET, NEW YORK 13
or 27 BROADWAY, LYNBROOK, N. Y.



(Continued from page 308)

\$745,000 addition to its Tampa, Florida plant, and is in the process of enlarging can-making operations in a number of other can plants. Similar additions are being made to paper plants in Van Wert, Ohio and Reading, Pa., and to the plastics plant in Cambridge, Ohio.

Celanese Corp. of America, New York. Initial step in the concentration of vast technological and research activities in the fields of textiles, plastics and chemicals in a single central laboratory was taken with the announcement that the company has acquired buildings for that purpose in Summit, New Jersey. The buildings were occupied by the Edison Junior High School. The company intends to convert the school into a modern industrial laboratory and later make extensions which will double the present size of the building. It is estimated that eventually approximately 500 scientists, chemists and skilled technicians will be at work in the new unit.

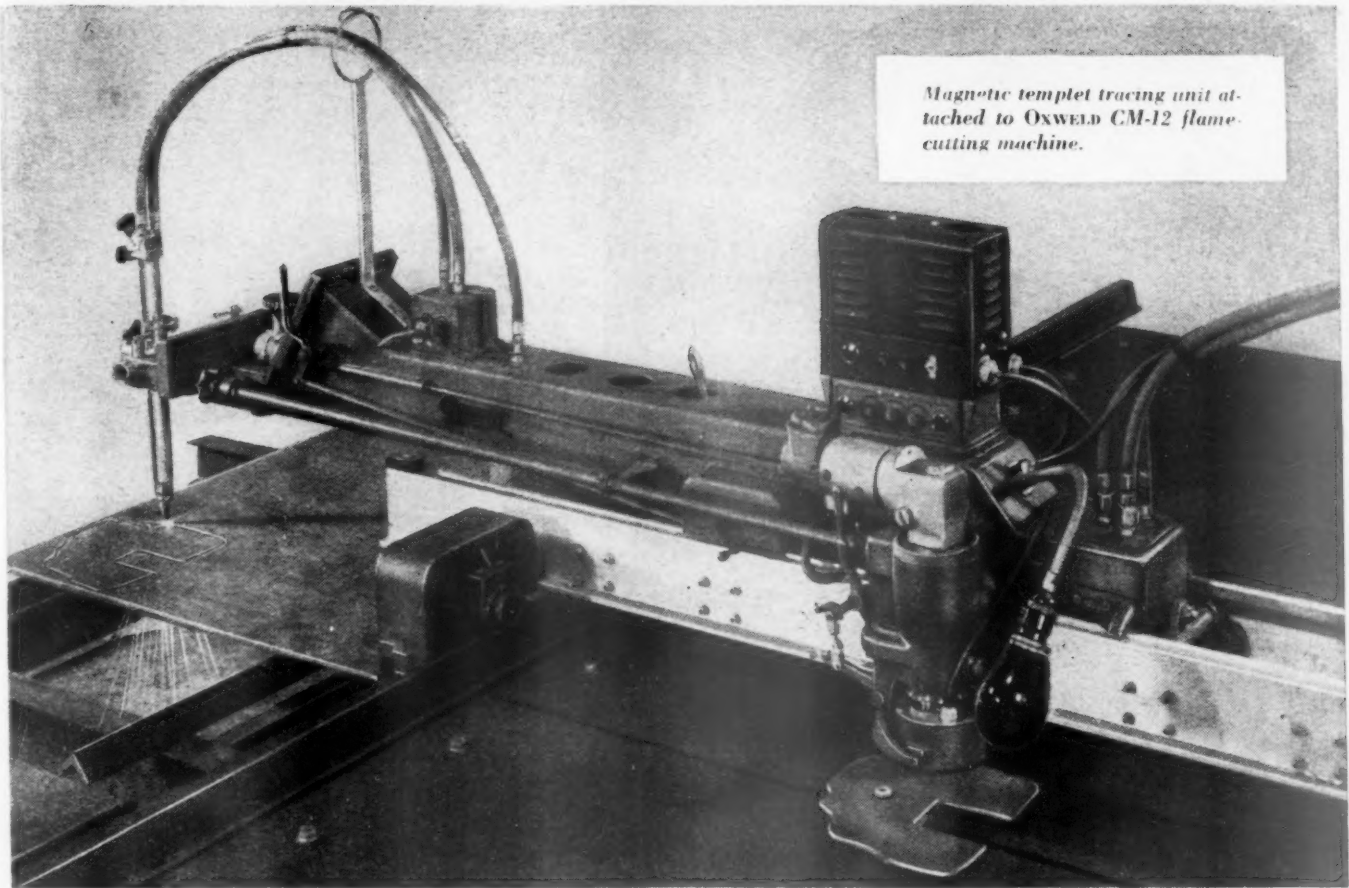
General Foods Corp., New York. Option has been acquired for right to purchase 25 acres of land at Hammondsport, N. Y., together with drilling rights on the adjacent property. General Foods plans to erect a modern salt producing plant with complete packaging facilities, to serve eastern customers of Diamond Crystal Salt Co. of St. Clair, Mich., and the Colonial Salt Co. of Akron, both units of General Foods. Drilling of a test well will be started immediately.

Hercules Powder Co., Wilmington, Del. Announcement is made of the approval by the Reconstruction Finance Corp. of the company's purchase of the B line nitro-cellulose plant, adjacent to Hercules' Parlin, N. J., plant. The newly acquired facilities will be utilized primarily to increase the production of cellulose acetate. Small part of the facilities has been used by Hercules to produce DDT for the armed forces. Manufacture of the insecticide will continue for the time being.

Air-Reduction Co., New York. Announcement is made that company will spend \$25,000,000 for plant improvements and expansion. First of scheduled expenditures will be \$6,500,000 for industrial gas plants, dry-ice plants, distribution and warehousing facilities and research laboratories. Other expenditures relate to improvements and extensions for many of the company's 179 plants in important industrial areas.

Brown Instrument Co., Philadelphia, Pa. Continued full employment and maximum production has gone into effect. Vice President Evleth of the industrial instrument division of Minneapolis-Honeywell Regulator Co. stated that Brown Company has few reconversion problems. The only changes involve technological improvements induced and perfected by war requirements, and these plus others in blueprint stage will be available for post-war industry.

(Continued on page 314)



Magnetic templet tracing unit attached to OXWELD CM-12 flame-cutting machine.

MINIMIZE MACHINING ON SHAPE-CUT PARTS

Use Magnetic Tracers on OXWELD Flame-Cutting Machines

OXWELD magnetic tracers automatically guide the oxy-acetylene blowpipe to produce identical shapes time after time. These tracers follow templets of any shape—even with 90-degree corners—without deviation. Templets can be finish-machined to exact dimensions, and because they are made of steel, they retain their accuracy on quantity runs. OXWELD magnetic tracers are simple in their operation... a magnetic roller, following the prepared templet, drives the machine at a uniform controlled speed.

If you use an OXWELD CM-12, CM-15, or CM-23 flame-cutting machine, you can obtain a magnetic tracing unit for it. If you are considering a new machine for repetitive cutting of complicated parts with close tolerances, or if you are now shaping metal parts by another method, you should investigate the advantages of an OXWELD machine equipped for magnetic tracing. Complete information on making templets is supplied with each unit.

Write to any Linde office for additional information.

BUY AND HOLD UNITED STATES VICTORY BONDS AND STAMPS

THE LINDE AIR PRODUCTS COMPANY

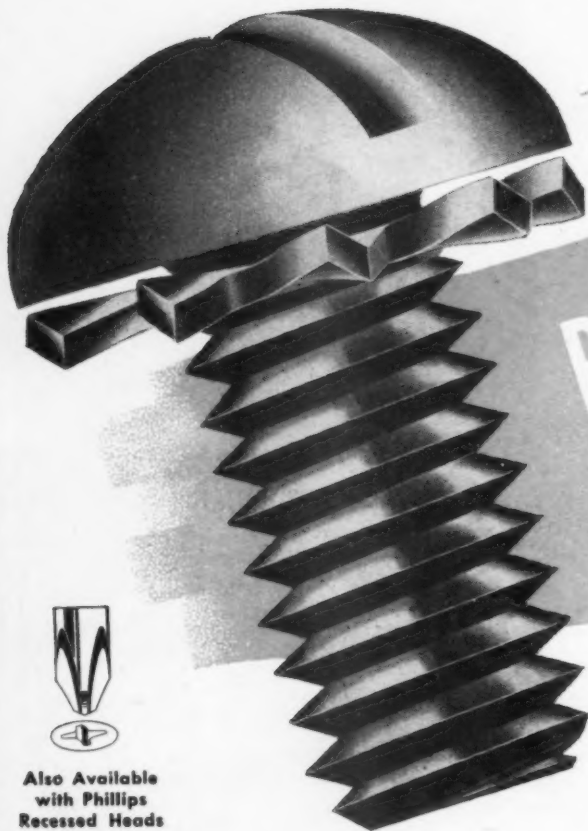
Unit of Union Carbide and Carbon Corporation

30 E. 42nd St., New York 17, N. Y. **UCC** Offices in Other Principal Cities

In Canada: Dominion Oxygen Company, Limited, Toronto

LINDE OXYGEN... PREST-O-LITE ACETYLENE... UNION CARBIDE
OXWELD, PUROX, PREST-O-WELD, UNIONMELT APPARATUS
OXWELD AND UNIONMELT SUPPLIES

The words "Linde," "Oxweld," "Prest-O-Lite," "Prest-O-Weld," "Purox," "Union," and "Unionmelt" are trade-marks of Union Carbide and Carbon Corporation or its Units.



Also Available
with Phillips
Recessed Heads

**Pre-Assembled
TO REDUCE
YOUR COSTS!**

SEMS

Trademark Reg. U. S. Pat. Off.

FASTENER UNITS

PRE-ASSEMBLED SHAKEPROOF LOCK WASHER AND SCREW

HERE ARE FOUR WAYS SEMS UNITS SAVE TIME AND MONEY



No time wasted putting a lock washer on a screw. Sems are delivered as a single unit—ready for immediate installation.



No dropped or lost lock washers. The lock washer on a Sems Fastener Unit can't drop off—but is free to rotate.



Easy to use in hard-to-reach parts. Sems Units assure fast assembly and there's no chance to "forget" the lock washer.



The right type and size lock washer for each connection. Important too, every Sems Unit includes a Shakeproof Lock Washer with Exclusive Tapered-Twisted Teeth.

Assemblers simply pick up a Sems Fastener Unit and drive it! No need to put a lock washer on a screw because the Sems Unit is a combination of both. Thus an entire operation is eliminated . . . assembly speeds up, costs speed down.

Learn now—right on your own assembly line—the multitude of advantages that this modern fastening method offers you.

Shakeproof Engineers will analyze your particular fastening applications, recommend the correct type and size of Sems Unit and show your workers how they can easily and quickly reduce motions and gain vital assembly time. Ask for this special service today . . . a Shakeproof field engineer is ready to give you the benefit of his extensive fastening knowledge.

**Get a Free Sems Fastener Unit Sample Test Kit
—Write for Kit No. 23**

SHAKEPROOF inc.
"fastening Headquarters"

Distributor of Shakeproof Products Manufactured by ILLINOIS TOOL WORKS
2501 North Keeler Avenue, Chicago 39, Illinois
Plants at Chicago and Elgin, Ill. In Canada: Canada Illinois Tools, Ltd., Toronto, Ont.
Los Angeles Office
5670 Wilshire Blvd., Los Angeles 36, Calif.
Detroit Office
5895 E. Grand Blvd., Detroit 2, Mich.

INTERNATIONAL DETROLA CORPORATION

DETROLA RADIO DIVISION

STARR AVENUE AT CHATFIELD - DETROIT 9, MICHIGAN
August 27, 1945

IN REPLYING REFER TO:

U. S. Gutta Percha Paint Company
Providence, Rhode Island

Gentlemen:

We are experiencing excellent results in the use of BARRELED SUNLIGHT INTERIOR WHITES in finishing the walls and ceilings of work areas in our radio electronics plant in Detroit, and thought you might be interested in hearing about our experience with your products.

Our interior plant design creates an efficiency in production and a pleasing effect on employee morale, utilizing white walls and ceilings with color confined to the dado areas. BARRELED SUNLIGHT INTERIOR WHITES have proven thoroughly practical from the maintenance application standpoint, and help to create both the atmosphere and the good seeing conditions we have sought from the repainting of these interior surfaces.

Very truly yours,

Alton J. Schick
ALTON J. SCHICK
Plant Engineer
AJS:mc

DETROLA

USES

WHITE PAINT

TO HELP CREATE GOOD SEEING CONDITIONS

Color

LIKE MANY other manufacturers making precision products, International Detrola Corporation recognizes the fact that efficient production depends very largely on good seeing conditions.

As its letter herewith testifies, this company has found that WHITE ceilings and walls, working as partners with a good lighting system, give the best seeing conditions obtainable.

A paint of lasting whiteness is best for plant ceilings and walls because it reflects more light than paint of any other color. Furthermore, it *distributes* light and brightness evenly throughout the working area. Dark shadows and glare, which result ONLY when light is NOT properly distributed, are eliminated.

For further data on the importance of light and paint to plant efficiency, send for a free copy of "Color for Industry" TODAY.

DATE.....

U. S. GUTTA PERCHA PAINT CO.
18-K Dudley St., Providence, R. I.

Please send us, without charge or obligation, a copy of your 16-page illustrated booklet, entitled "Color for Industry".

COMPANY.....

STREET AND NUMBER.....

CITY..... STATE.....

ATTENTION.....

TITLE.....

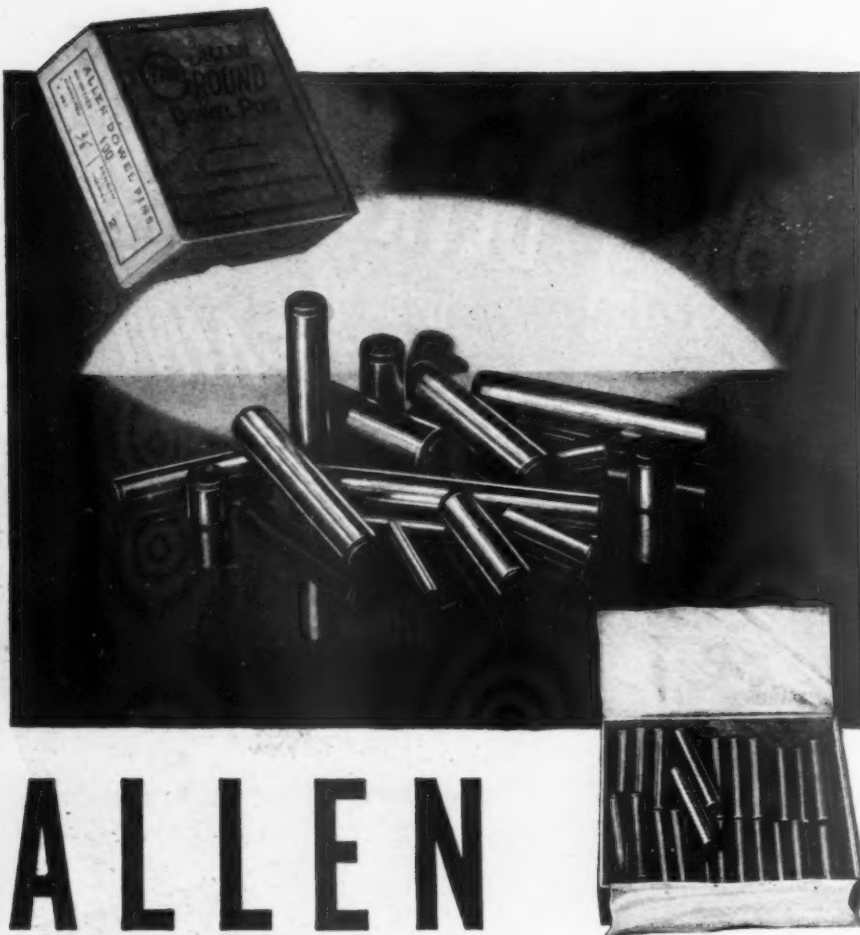
BARRELED



SUNLIGHT

SPECIALISTS FOR NEARLY FIFTY YEARS

IN MAINTENANCE PAINTS FOR INDUSTRY



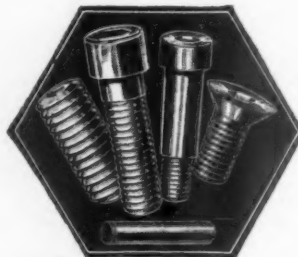
ALLEN

PRECISION Dowel Pins

"TRU-GROUND" for accurate locating of work: Ground to a limit of .0002" over basic size, with an allowable tolerance of plus or minus .0001".

"STEELED" to retain precision standards in die assemblies. Made of special-analysis ALLENOY steel, heat-treated to an extremely hard surface, with a core of the right hardness to resist any tendency to "mushroom" when driven into a tight hole. Tensile strength: 240,000 to 250,000 lbs. per square inch. Here's the high safety factor in **holding-power** you always get for plus-measure in Allen products.

Ask your local ALLEN Distributor for samples and dimensional data . . . the same Distributor who serves you dependably with Allen Hex Socket Screws and other "life-lines" of essential supplies.



THE ALLEN MANUFACTURING COMPANY
HARTFORD 1, CONNECTICUT, U. S. A.

(Continued from page 310)

Hewitt Rubber Corporation of Buffalo, N. Y., has acquired a controlling interest in Robins Conveyor Inc., Passaic, N. J. President Thomas Robins, Jr. of Hewitt states that the combination establishes Hewitt as the only manufacturer able to engineer and build all parts of belt conveying systems under single management and responsibility.

Plymold Corp., Lawrence, Mass. Plans are reported to have been completed for the manufacture of wide list of items from molded plywood. List includes furniture, office equipment, bedroom and dining room sets, boats, luggage, home furnishings, radio cabinets, refrigerator cabinets and other items for civilian use.

Electrical Control Industry. Little or no difficulty in reconvertng to peacetime production is anticipated according to members of the Electrical Industrial Control Advisory Committee who held their final meeting at Washington recently. Committee members agreed that the industry, as a whole, is in an excellent position to resume production of motor controls for civilian use. Reconversion presents few if any problems.

Philco Corp., Philadelphia, Pa. Recent ground-breaking ceremonies marked the beginning of work on an ultra-modern Philco plant which it is said will feature the longest continuous radio production lines in the world. The new plant will contain 300,000 square feet of floor space and will cost upwards of a million dollars.

The Trane Co., La Crosse, Wis., announces postwar expansion program that will more than double present manufacturing facilities. Major part of program consists of building a new addition to the main plant that will increase its size by 40%. This will permit fabrication of heating and air conditioning units on assembly line basis. Company has also purchased large factory building which it leased during the war, for the production of heating specialties. Company has substantial backlog of civilian orders which will absorb materials that might otherwise be surplus as a result of government contract cancellations. Practically no retooling will be necessary.

Crosley Corp., Cincinnati. Production of 1,400,000 home radio receivers and 450,000 electric refrigerators in the first full year of post-war operation has been set by manufacturing division. Upon completion of reconversion program, production calls for 5400 radio receivers per day, and 1800 refrigerators per day.

Wiremold Co., Hartford, Conn. Orders from automotive manufacturers for auto cable housing are larger than any received before the war. The orders have given textile division a backlog of many millions of feet which will keep it busy well into 1946. Metals division also has largest backlog in its history. Company emphasizes that it has no plans for going into the lighting fixture business.

IN THE INDUSTRIAL SPOTLIGHT



KRAFT WRAPPING
GUMMED TAPE
TYMPAN
INDUSTRIAL PAPERS
CORRUGATED
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DRINKING CUPS
SPECIALTIES

INDUSTRIAL PAPER DIVISION

Wilcox-Walter-Furlong Paper Company

30 South 6th Street, Philadelphia

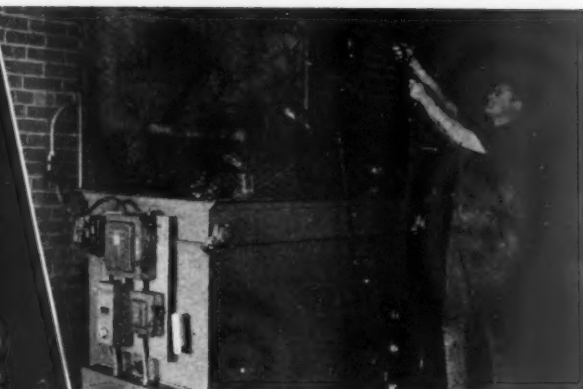
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•

W A S H I N G T O N

**YOUR
PLANT
MAY
PROFITABLY
USE
THIS
CLEANING
MACHINE**



Speeding up the cleaning operation by unbelievably large margins...vastly improving cleaning results and saving labor on every job...


The Magnus Aja-Dip Cleaning Machine
(Patented)

is in service today on such widely diversified cleaning operations as:

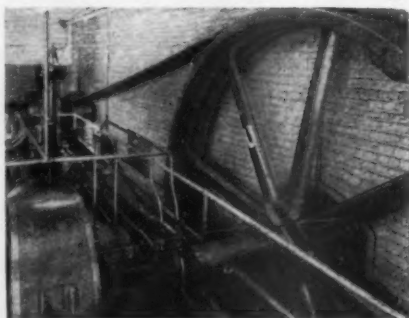
Typewriters and Business Machines	Bakery Bread, Cake and Pie Pans
Automotive Engine Blocks	Airplane Engines and parts
All Kinds of Metal Units	Gas Meters

Do you think you might be able to use it? Let us show you!

This machine is based on a unique principle of agitation which greatly speeds and improves cleaning, when used with the right Magnus Cleaner.

MAGNUS  **MAGNUS CHEMICAL CO. 93 SOUTH AVE., GARWOOD, N. J.**
Cleaners • Methods • Machines

**Retired...
after long and productive service**



Replaced after over sixteen years of service this 18" heavy, double Tannate leather belt, 69 feet long, was shortened only once in all those years. This, in spite of the fact that the original load was increased by over 40 percent.

TANNATE leather belting is made from leather of special tannage which gives it exceptional grip, pliability, elasticity, strength and durability.

It has a remarkable pulling surface. Tannate can transmit more power with less tension than most belts, consequently there is less strain on the bearings.

A TANNATE belt, operating under the same conditions as the average oak belt, has about 20% greater capacity at the recommended rated load of the oak belt. If this load is increased a third the Tannate belt will have more than 70% greater capacity than the average oak belt.

A dry heat of 212° F. and damp heat of 170° F. have no appreciable bad effect on Tannate. It better withstands mineral oils, acid fumes and dilute acids than oak tanned belting.

Tannate belts deliver more power because of their exceptional grip and capacity.

Consult Rhoads Engineering Service. Let us offer our solution to your belting problems.

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NEW YORK • CHICAGO • ATLANTA

CPA Now Takes Over

Civilian Production Administration Succeeds

WPB — Five Main Bureaus

Following the announcement by President Truman of his acceptance of the resignation of J. A. Krug, Chairman of the War Production Board, effective November 3, and of the dissolution of WPB on that date, J. D. Small, newly named Administrator of Civilian Production Administration, which will succeed WPB, recently outlined in detail the functions of the new agency.

"The War Production Board's task of production for war has been completed and WPB's record of accomplishment during the war years speaks for itself," Mr. Small said. The Civilian Production Administration will take over, and will carry forward, those remaining WPB functions and controls that are required during the transition period of reconversion to accomplish the objectives laid down by the applicable federal statutes and Executive Orders of the President, including particularly the War Mobilization and Reconversion Act of 1944 and the recent executive order of the President outlining the policies to be followed in the transition from war to peace. The functions transferred to the new office will be utilized to further a swift orderly transition from wartime production to a maximum peacetime production in industry free from wartime Government controls with due regard for the stability of prices and costs.

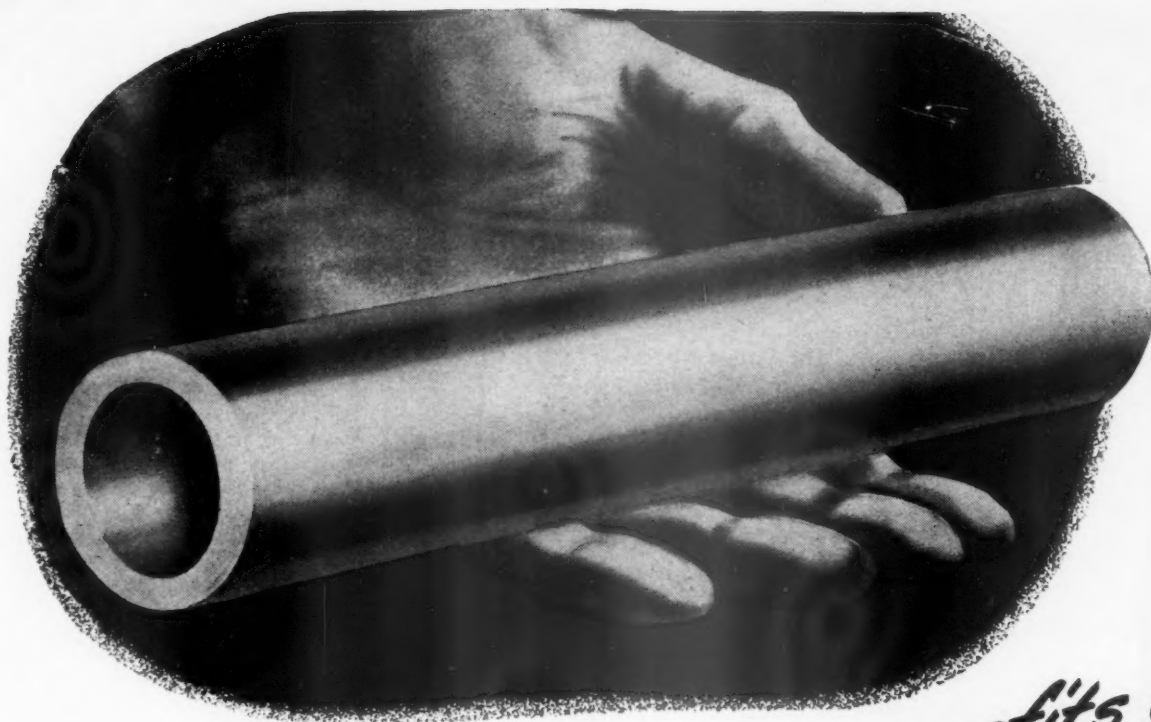
"It will use its authorized powers to expand the production of materials which are in short supply; limit the use of materials which are still scarce; restrict the accumulation of inventories so as to avoid speculation, hoarding, and unbalanced distribution which would curtail total production; grant priority assistance to break bottlenecks which would impede the reconversion process; facilitate the fulfillment of relief and other essential export programs, and allocate scarce materials or facilities necessary for the production of low priced items essential to the continued success of the stabilization program."

Transfer on Nov. 3

The executive order creating the Civilian Production Administration as a separate agency carrying out the policies of the Director of War Mobilization and Reconversion, transfers to it on November 3, 1945, all the still remaining functions, powers, personnel, records, etc., of the War Production Board. Any outstanding WPB regulations, directives, orders, or delegations of authority remain in full force and effect as instruments of Civilian Production Administration, until revoked or amended by that office. Mr. Small explained, however, that the individual CPA controls will be lifted as soon as each is no longer needed.

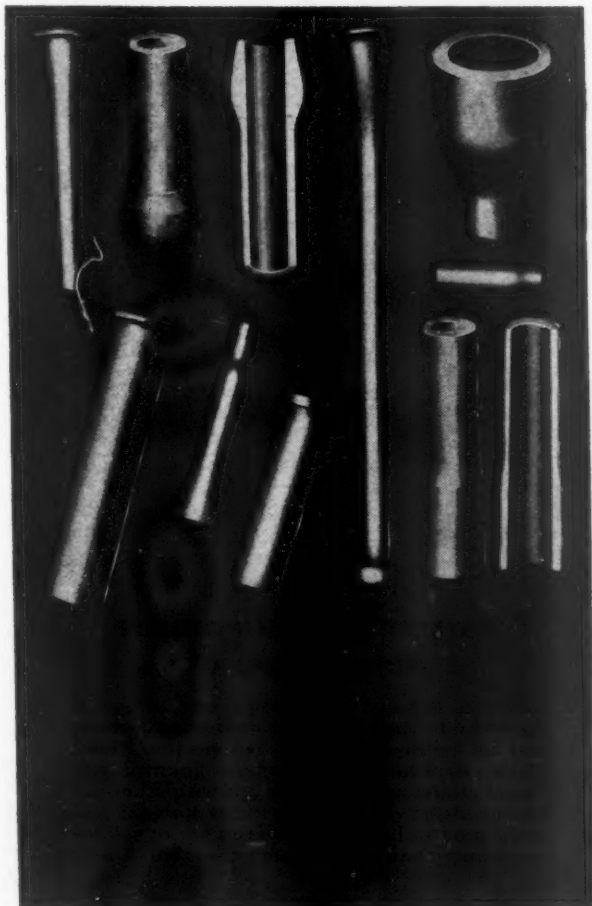
Outlining the organizational structure of the new office, Mr. Small said that it would be much smaller and more compact than the giant WPB structure that was needed during the war years. There will be five main bureaus handling re-

(Continued on page 318)



post-war profits!

SHORTCUT TO A ~~WAR PRODUCTION~~



During the urgent production-for-war period, Seamless Steel Mechanical Tubing was one of the most *critical* items . . . because in its wide variety of analyses, sizes, shapes and forms, tubing saved millions of man and machine hours, and countless tons of vital steel.

When Pittsburgh Seamless Mechanical Tubing can be adapted to the job in place of solid stock or forgings, such costly and time consuming operations as boring, rough cutting, finishing, grinding, etc. can often be eliminated entirely . . . measurably increasing production. Savings in tool wear, materials and handling likewise result.

Remember that post-war profits may hinge on the balance of *production efficiency*! If you are not now tooled up for tubing your competitive production position may be adversely affected. Investigate the application of *Pittsburgh* Seamless to your post-war production problems, *now*.

PITTSBURGH STEEL COMPANY
1671 GRANT BUILDING, PITTSBURGH, PA.

Pittsburgh  Seamless
MECHANICAL TUBING
CARBON, ALLOY, STAINLESS STEEL

All Of One Quality The Finest!

Chicago Standard Screw Products are manufactured from finer materials and are unsurpassed for their increased strength, greater accuracy and perfect uniformity.

Chicago "SAFETY PLUS" Line includes:
 Socket Head Cap Screws • Socket Set Screws • Stripper Bolts • Square Head Dog Point Set Screws • Socket Pipe Plugs • Keys for Socket Screw Products.

Complete Line includes:
 Hexagon Head Cap Screws • Square Head Cup Point Set Screws • Headless Set Screws • Fillister Head Cap Screws • Flat Head Cap Screws • Taper Pins • Milled Steel Studs • Semi-Finished Hexagon Nuts.

In your present plans for increased production—try "Chicago Screw"—manufacturers of precision-made Standard Screw Products.

*These Fine Products are sold only thru
Authorized Distributors*



THE CHICAGO SCREW CO.

ESTABLISHED 1872

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(Continued from page 316)

spectively, industrial operations, priorities, field operations, international supply, and the orderly demobilization of former WPB functions that will now either be closed out or, in some cases, transferred to other agencies.

"Instructions have been sent to the Compliance Division to continue its expanded investigations and other compliance activities during the next few months in order to prevent possible violators from getting an unfair advantage over the vast majority of business concerns which have always tried to comply with our orders," Mr. Small revealed.

The functions of the five bureaus operating under Civilian Production Administration are generally planned to be as follows:

(1) Industrial Reconversion Operations—This bureau will deal with problems affecting particular industries which produce or consume scarce raw materials and products such as rubber, forest products, tin, lead and some other minerals, some construction materials, a few textile items and chemicals, and various hard goods and equipment items.

(2) Reconversion Priorities — This bureau will be responsible for the modification of general priorities and allocation controls (as distinct from the problems of particular industries), the internal clearance of agency actions, appeals, inventory problems, compliance, and relationships with other government agencies.

(3) Field Operations — is concerned with operations in the field including compliance.

(4) International Supply — is concerned chiefly with imports, exports and international allocations.

(5) Demobilization — covers functional demobilization and transfers, budget, personnel, administrative services, and records.

Mr. Small joined WPB in September, 1944, as executive officer. He was appointed Chief of Staff by Mr. Krug last April 28. He headed the Committee on Period One which planned WPB's program for the transitional period between the end of the war in Europe and the defeat of Japan and which also drew up the WPB plan for full reconversion of industry that went into effect on V-J Day.

Before joining WPB Mr. Small served as Navy materials control officer and landing craft coordinator, from 1943 to 1944. Before that he was deputy director of the Army-Navy Munitions Board from January 1942 to August 1943.

SURPLUS PROPERTY BOARD REORGANIZED

Reorganization of the Surplus Property Administration to speed the disposal of billions of dollars of surplus property was announced by W. Stuart Symington, newly appointed Surplus Property Administrator.

Under the reorganization, the Surplus
(Continued on page 322)

Now-"U.S." Announces NEOPRENE INDUSTRIAL TIRES!



**EASIER
STARTING**

**EASIER
ROLLING**

**LOWER POWER
CONSUMPTION**

*For More Work
from your
Industrial Trucks
SPECIFY*

**In Every Service
U. S. Tires Excel**



Here's the biggest industrial tire news since prewar days—the new U. S. Neoprene Industrial Solid Tire that will rid your trucks and tractors of "sluggishness," cut power and fuel consumption, step up operating efficiency as much as 60%, increase speed, haul more loads per day at less cost per load.

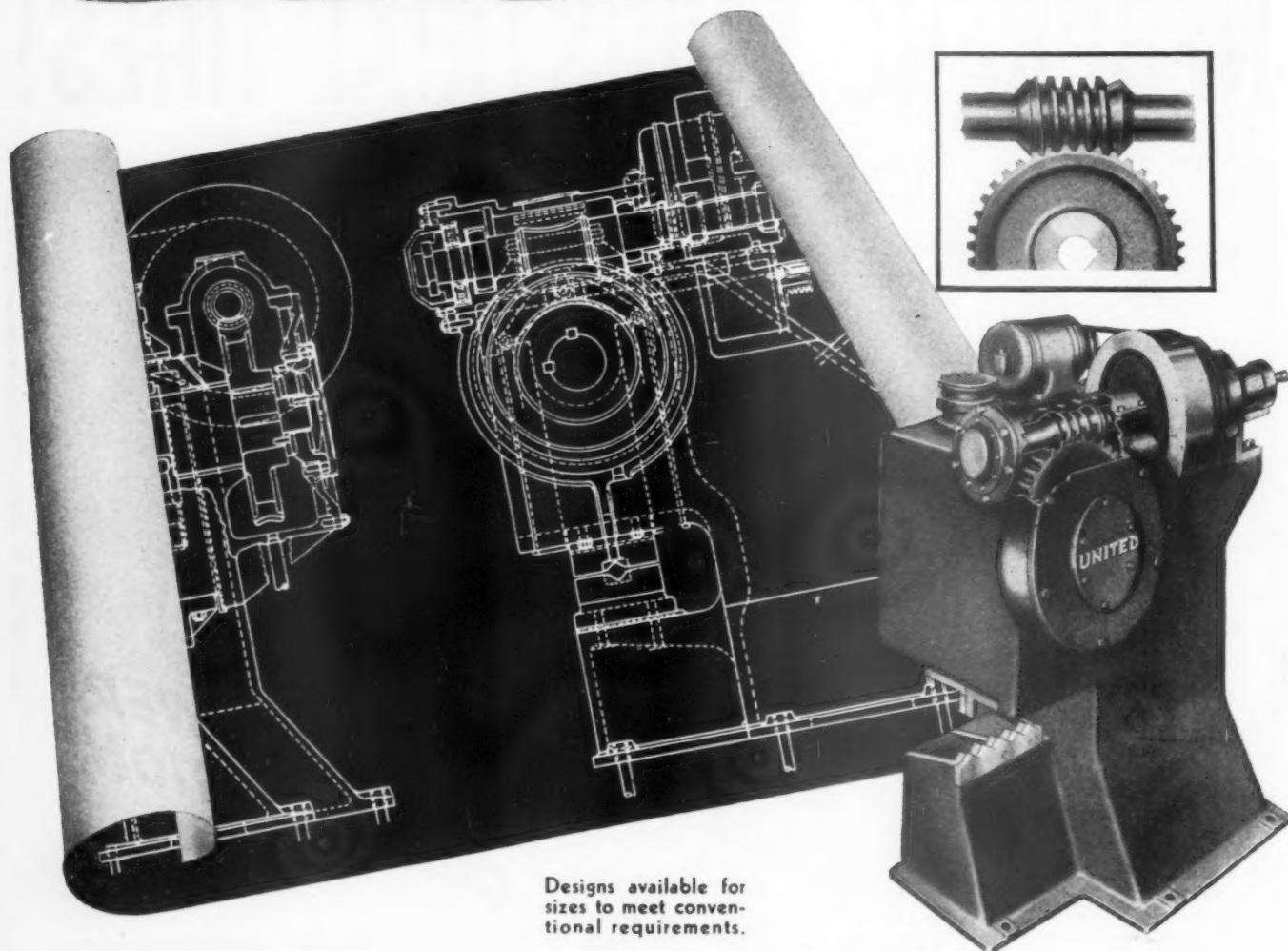
Fast-starting, easy-rolling, oil-resisting U. S. Neoprene Industrial Solid Tires are built to do your job better than ever before. Call your U. S. Tire Dealer today.



UNITED STATES RUBBER COMPANY

SERVING THROUGH SCIENCE 1230 SIXTH AVENUE • ROCKEFELLER CENTER • NEW YORK 20, N. Y.

a new **UNITED** *Cone Worm Driven* **VERTICAL SHEAR**



Designs available for
sizes to meet conven-
tional requirements.

- **CONE WORM GEARING** assures uniform power . . . smooth, quiet operation.
- Simple rugged construction assures longer service life.
- Fewer moving parts reduce maintenance expense.
- New compact design materially reduces overall dimensions.
- Fully enclosed gears.
- Forced oil lubrication.
- Equipped with either straight or grooved knives.

Write for complete technical data or consult our engineers
concerning special designs for specific requirements.

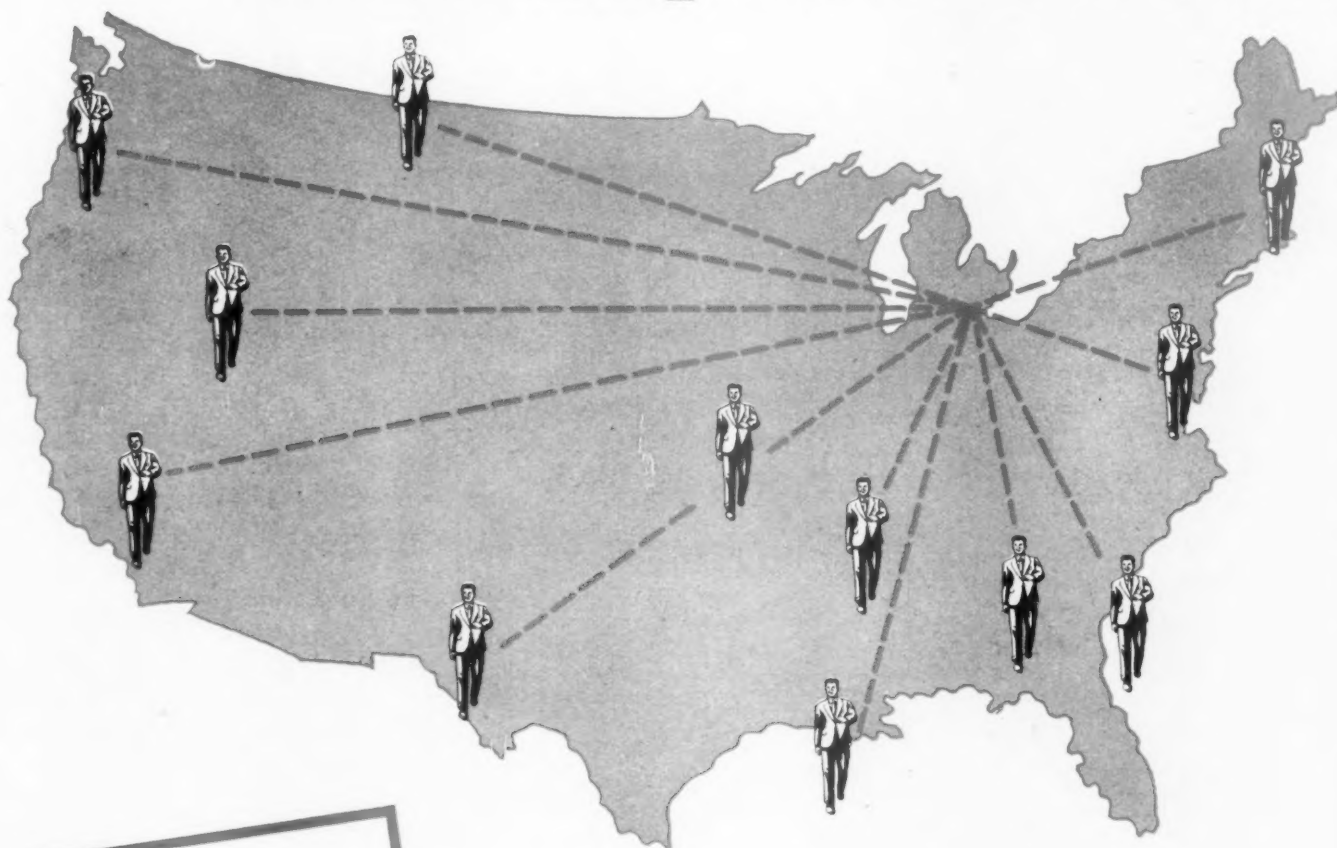


United Engineering and Foundry Company **Pittsburgh, Pennsylvania**

Plants at **PITTSBURGH • VANDERGRIFT • NEW CASTLE • YOUNGSTOWN • CANTON**
Subsidiaries: Adamson United Company, Akron, Ohio
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**The World's Largest Designers and Makers of Rolls and Rolling Mill Equipment*

A NATIONAL Engineer is Nearby to Serve You!



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DISTRIBUTOR!

Leading distributors in every section of the country have complete stocks of National Cutting Tools. Call your Mill Supply Distributor for National Cutting Tools or any staple industrial product.

NATIONAL SERVICE ENGINEERS are strategically located in every section of the country. These highly-trained specialists have had years of experience in dealing with all types of problems concerning cutting tools and their uses.

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TWIST DRILL AND TOOL COMPANY

DETROIT AND ROCHESTER, MICHIGAN

Tap and Die Division—Winter Brothers Co., Wrentham, Mass.

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TWIST DRILLS
REAMERS, ROSS
MILLING CUTTERS
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SPECIAL TOOLS



A Better Service Born of Our Wartime Experience

With the nation engaged in all-out war, transportation became a factor of dominating importance. Every form of shipping was summoned into action. Railway Express, equipped to deliver nationwide service in peacetime, was suddenly called upon to use its complete resources in equipment and organization to cope with the most pressing demands in history. During the first six months of 1945, the Government express traffic was 42 times heavier than for the entire year of 1939.

Gun, Tank and Engine Parts, Serums and Drugs... Urgent and strategic materiel had to move speedily and accurately, and in tremendous volume. At the same time the fast and uninterrupted flow of raw materials and finished products to and from manufacturing plants was a wartime essential.

Camp and Base Express Offices... The personal package traffic between homes and camps meant millions of shipments daily. Fully equipped Express offices handled this important feature of wartime service.

Blood Units... High speed handling and special refrigerator containers saved thousands of American wounded. Over 8 million pints of blood were shipped in this manner by Express.

Ration Books and Tokens... More than 2 1/2 million pounds of ration books, and ration tokens by the billions were delivered to their destinations through 23,000 Express offices.

War Dogs for the K-9 Corps... The highly technical service of handling and shipping the nation's war dogs was assigned solely to Railway Express, and performed with signal success.

The above is a partial summary of wartime Express service. Today, with the return of peace, we are adding to our facilities all of the lessons learned in that historic period. We appreciate your cooperation and tolerance during the wartime days. We promise, in the not too distant future, a service superior to any we have rendered during our long nation-wide record.

RAILWAY EXPRESS
AGENCY, INC.
NATION-WIDE RAIL-AIR SERVICE

(Continued from page 318)

Property Administration, which Congress established to take over the functions of the old Surplus Property Board, will be decentralized among five assistant administrators to speed up the solution of pressing problems of surplus disposal. The Surplus Property Administration has the function of supervising and regulating the disposal of governmental war assets under the Surplus Property Act of 1944.

"At this time, four broad problems are paramount: making it simple for veterans to exercise their rights to preference in buying surplus goods for the establishments and maintenance of their own independent businesses; expediting the clearance of government property from plants; and more effectively and rapidly moving surplus goods with special emphasis on the needs of preferred groups under the Act—Federal, State and local governments, tax-exempt educational and medical institutions, farmers, and small business, and the speedy disposal of war plants and their machine tools for peace time operations," Mr. Symington stated.

Chairman of the Surplus Property Board since July, Mr. Symington was appointed by President Truman to be Surplus Property Administrator, the single head of the new Surplus Property Administration. It was emphasized that the Surplus Property Act is not otherwise affected by the change.

The new administrative branches and their chiefs are as follows:

David H. O'Brien, capital and producers goods, including plants, industrial equipment and aircraft.

Merritt C. Penticoff, consumers goods, including agricultural and construction machinery. He will also handle matters relating to preferential disposals.

Col. G. E. Monson, USMC, operations. Dr. Raymond T. Bowman, economic research and statistics.

Lt. Colonel John M. Redding, public information and policies.

James J. Wadsworth is deputy administrator for claimant agencies. He will handle programs for Federal, state and local government transfers and utilization of surplus property, and for educational, health and veterans preferential disposals.

• • •

PRIORITIES REGULATION 32 REVISED

The second revision of its general inventory control regulation, Priorities Regulation 32, was announced by the War Production Board. The new revision establishes many changes necessitated by revocation of the Controlled Materials Plan and other orders and regulations on September 30.

The latest revision lifts controls from some items and tightens controls on other items, in continuance of WPB policy of exempting items in ample supply from inventory controls as rapidly as warranted while at the same time retaining controls on more critical items necessary to assist orderly reconversion.

The following listings have been added to the materials exempted from all in-

(Continued on page 326)

WHAT ARE THEY USED FOR



Craftsmen use *American Swiss* Swiss Pattern Files for all types of intricate, precision filing . . . in making dies, jigs and fixtures . . . in finishing parts . . . wherever accuracy and finish are important.

The name *American Swiss* on a file is proof of the best in file quality . . . uniform hardness . . . fast cutting . . . smooth finishing . . . long lasting. There are over 3,000 different shapes, sizes and cuts of *American Swiss* Swiss Pattern Files carried in stock by leading distributors everywhere.

Ask our distributor for our latest catalog, or write direct for it, so you may be able to select and have on hand the correct files for your work. That's the surest way of keeping your filing costs to a minimum.

Buy from Our Distributor

AMERICAN SWISS FILE & TOOL CO.

ELIZABETH 1

NEW JERSEY



ASK FOR THEM
BY THIS NAME

*American
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SWISS PATTERN FILES



JESSOP

Stainless Steels

MOST VERSATILE OF ALL METALS . . .

MOST AMAZING IN PROPERTIES . . .

WHAT can be done with Stainless Steel is a question that is finding a new answer every day. Because of its outstanding characteristics of corrosion resistance, heat resistance, and acid resistance, it has already found thousands of applications in fields so widely separated as hypodermic needles and railway coaches.

Because of this extreme versatility—a metal with so many valuable properties, accepting so many kinds of treatment and fabrication, and in a majority of applications doing a better job than would be possible with any other metal—because of these facts, Stainless Steel merits your close attention in connection with *your* product.

Higher grade Stainless Steels than those produced by Jessop do not exist. Write for the catalog.

AVAILABLE FORMS IN JESSOP STAINLESS STEEL

Bars (Hot Rolled—Cold Drawn—
Centerless Ground) . . . Billets . . .
Castings . . . Sheets . . . Circles . . .
Special Shapes . . . Plates . . . Rings
. . . Strip . . . Flanged and Dished
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Wellington 3300
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JESSOP STEEL COMPANY

HEAD OFFICE AND WORKS

WASHINGTON, Penna.





Your -----
Machine Flopped
on Your Guarantee!



Not Mine, Brother!

Why don't you get together
on proof that you both can count on?

Confidential note to machine-builders and manufacturers of mechanical products (with a couple of side remarks to users):—

It's as simple as this: Build into your machine or product, as an integral part, a Veeder-Root Counting Device that registers strokes, turns, pieces, trips, and many other units of performance . . . mechanically or electrically. Then your customers can see when your guarantee period is reached . . . for the Facts-in-Figures are right there in front of them in plain, bold black and white. So there's no room for argument, no needless loss of goodwill or future business through lack of positive proof.

There are Veeder-Root Devices that will record the exact number of performance-units constituting the guarantee period. And then these devices will go

on proving to your customers that they're getting all the performance you built into your product. You are invited to take "Counsel" with Veeder-Root engineers, who will show you just how you can protect and profit yourself with built-in Veeder-Root Countrol.

The Counting House of Industry



VEEDER-ROOT INC.

Hartford 2, Connecticut

In Canada: Veeder-Root of Canada, Ltd., Montreal
In England: Veeder-Root Ltd. (New address on request)

EACH PACKAGE ITS OWN SHOWCASE...



**new sales-appeal
for lingerie or lipstick,
face powder or files**



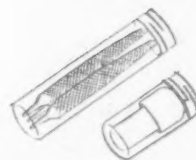
Crystal-clear cellulosic containers let buyers *see* what they buy without opening the package. Shatter-proof, feather-light, too, they enhance the saleability of a thousand diversified products and afford *adequate protection*—at surprisingly low cost! "Clearsite" types—mass-production development of Celluplastic Corporation, Newark, N. J.—are typical. Truly miniature showcases, in a variety of shapes, they help sales-leaders *stay* in the lead.

These sturdy containers may have walls as thin as one eight-thousandth of an inch. Labels are quickly printed on. Other types can be rapidly fabricated in any shape and size by injection molding, by blowing, or by forming from sheets. Which meets *your* product and price needs best?



Transparent, dust-proof
boxes for
lingerie and linens

Lightweight, sparkling
containers for
drugs and cosmetics



Tough, moisture-resistant
packages for
tools and hardware

HERCULES

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*For general-purpose
production plastics*

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INCORPORATED

CP-59

are you on our mailing list?

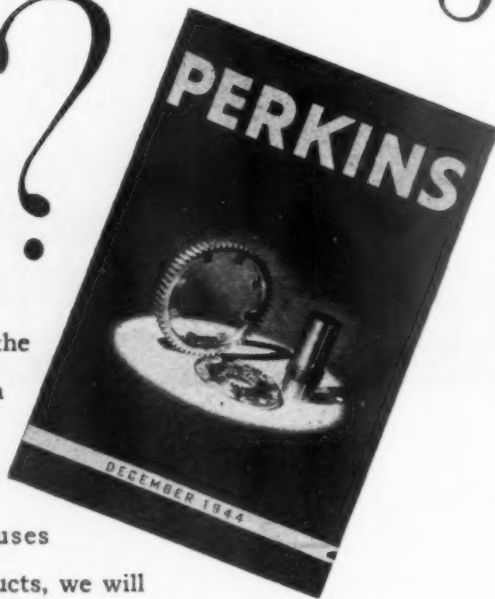
PERKINS is the name of the house organ we publish monthly. If you are a Purchasing Agent or Engineer of a firm which uses custom-cut gears in its products, we will be pleased to place your name on our mailing list.

The editorial content covers a wide range of interests and may be either amusing or instructive; at any rate, it is devoid of "commercials." Sales promotion matter is confined to a list of the company's products on the outside back cover, plus a single advertisement occupying the center spread. The purpose of these advertisements is to convey the idea that we not only know our business thoroughly, but that in general, we are a pretty good outfit to do business with. Please write us on your firm's letterhead if you wish to receive Perkins. Price of subscription: Your Good Will.

PERKINS MAKES:

Helical Gears Bevel Gears Ratchets
Worm Gears Spiral Gears Spur Gears
Ground Thread Worms

PERKINS Custom-cut GEARS
PERKINS MACHINE & GEAR COMPANY, SPRINGFIELD 2, MASS.



(Continued from page 322)

ventory controls, and thus placed on the exempted list, known as Table 3:

Bentonite; English China Clay; Furfural; Indian Kyanite; Pipe accessories; Sediment separators; Goggle valves and Valve handwheels.

Iron and Steel Valves

To clarify the listing of iron and steel valves it now indicates that it does not include valves of the lubricated plug type, air brake equipment, aircraft, instrument, and refrigeration type valves, and likewise the listing of pipe fittings does not include compression, flared, or parker types of valves.

In view of the increased demand expected, asbestos building materials have been removed from Table 3 and again placed under inventory control.

Table 1, covering materials and products subject to specific inventory provisions, has been completely re-written to provide new listings for copper and copper base alloys and steel and iron products to take the place of the Controlled Materials listings formerly shown. The 60-day limitation on copper and copper base alloys is continued.

Steel and Iron

The steel and iron listings now include a 60-day limitation on gray iron castings, including soil pipe, and a 30-day limitation on pig iron, and continue the 45-day limitation on malleable iron castings.

In the case of steel, the following shapes and forms only are subject to the former 60-day limitation:

Carbon steel bars, sheet and strip, structural shapes and piling, tin plate,terne plate and tin mill black plate, and silicon electrical sheet and strip alloy steel. All other shapes and forms of carbon and alloy steel remain subject to the minimum practicable working inventory limitations.

Utilities Subject To PR32

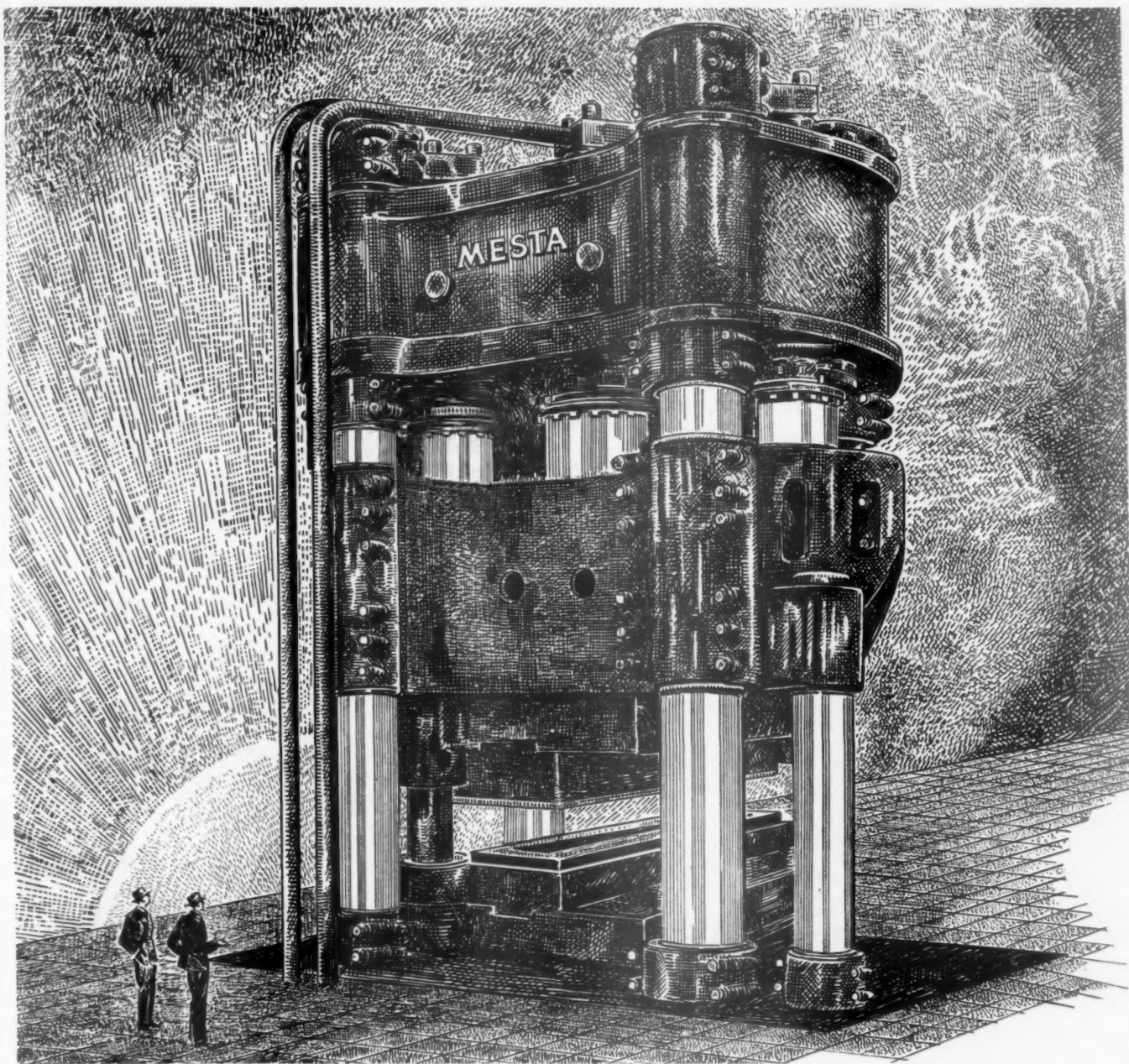
Utilities, communication companies, and operators of transportation systems are now subject to the provisions of Priorities Regulation 32, following the revocation of Orders U-1, U-3, U-4, and P-142. Accordingly, appropriate changes have been made in Pr. Reg. 32's Table 2, which designates the classes of persons subject to specific inventory provisions.

Other minor revisions have been made in the body of the regulation and in Interpretations 2, relating to minimum sale quantities and production runs, and 3, making or delivery materials earlier than required by customer, due to the ending of the Controlled Materials Plan.

WPB officials said it was their intention to keep Pr. Reg. 32 a flexible control in order that all may have a fair share of the materials still in short supply. Accordingly, WPB is reiterating its policy that all persons order materials which are subject to the regulation only in such amounts and for such delivery as they would be permitted to receive under the regulation.

WPB compliance investigators are giving

(Continued on page 328)



Looming on the horizon — the largest die forging press in the world, now in process of installation at Wyman-Gordon. When this press is completed at the end of this year, magnesium and high strength aluminum alloy forgings larger than any yet made will be available. This press will be operated by Wyman-Gordon Products Corporation, a wholly owned subsidiary of Wyman-Gordon Company for the account of Reconstruction Finance Corporation

which owns the press, and will be available to aircraft manufacturers in particular and to industry generally for experimentation in and for the development and production of light metal forgings. This means to our aircraft industry reduced weight which, in turn, means increased pay-load and greater performance for American planes . . . And for industry in general—complete range of magnesium and aluminum forgings.

WYMAN - GORDON PRODUCTS CORPORATION

WORCESTER, MASSACHUSETTS, U. S. A.

FREE TO PURCHASING MEN!



Klee-Vu Plastic Envelopes offer low-cost way to cut errors, boost output

Send today for this 9" x 12" standard Klee-Vu Plastic Envelope and show it to your production executives. They'll see its advantages at once. Klee-Vu Envelopes keep factory records, job cards, etc.; clean and neat, free of dirt, grime, fingerprints. They eliminate doubts about written instructions. They help avoid errors and make-overs on vital jobs and speed up work. Excellent for keeping much-handled office forms bright and clean—save re-copying and re-typing time. Cost is low—production savings high. Send for your free sample by filling in and mailing the coupon below.

Many styles to choose from!

There's a Klee-Vu Plastic Envelope for every purpose. Special styles at slight extra cost. Write for your free sample today. Attach coupon to your letterhead.



AMERICAN PLASTIC PRODUCTS
2907 S. Main Street Los Angeles 7, Cal.
Branch Office and Warehouse:
190 Berry St., Brooklyn, N. Y.

FREE SAMPLE! Mail Coupon!

AMERICAN PLASTIC PRODUCTS
2907 S. Main St., Los Angeles 7, Cal.
Gentlemen: Please send us, without cost,
one of your standard Klee-Vu Plastic
Envelopes, as illustrated above.

Company

Address

City Zone State

(Continued from page 326)

ing major emphasis to this matter in their spot checks, and will require adjustments of orders to conform to its provisions.

1 1 1

AN OPEN LETTER TO INDUSTRY 100,000 CONTRACTS CANCELLED

Industry and government face the gigantic task today of settling over 100,000 prime contracts cancelled with the end of the war. There are hundreds of thousands of terminated subcontracts. These remnants of war must be cleared away promptly if we are to get on with the business of peace.

Let's do the job now!

The machinery for settling contracts is ready. It has been tested. Eighteen thousand military personnel are trained for this specialized task. Several times that number of contractors' representatives likewise are trained.

Our goal now is the final settlement of the bulk of contracts by the end of this year. But claims cannot be settled until they are filed.

Industry and government, teamed together, produced the vast supplies of war that made victory possible. Now this same team must work together to tie up the loose ends of war production. The Army and Navy want to get out of your business. It's Industry's move now.

H. L. MERRING, Rear Admiral,
USN (Ret.)

Chief Industrial Readjustment Branch
Material Div. Office Asst. Secy. Navy

D. N. HAUSEMAN
Brigadier General, GSC
Director, Readjustment Division

1 1 1

FRACTIONAL MOTORS CEILINGS INCREASED NINE PERCENT

An increase of nine per cent of producers' ceiling prices for fractional horsepower motors was announced by the Office of Price Administration. Resellers of motors also may increase their prices by nine per cent. Amendment No. 17 to Revised Maximum Price Regulation No. 136).

1 1 1

CONSTRUCTION MACHINERY CEILING INCREASED 5%

An interim increase of five per cent in the ceiling prices for basic construction machinery and equipment urgently needed in post-war public works, highway and home construction and maintenance programs was announced by the Office of Price Administration.

The upward adjustment is at the manufacturers' level, and may be passed on to buyers by resellers at all levels of distribution.

It became effective September 28, 1945. The increase is applicable to more than 100 classifications of items, including cranes, dredges, drills, graders, concrete mixers, loaders, road maintainers, pavers, rollers, street sweepers, track-laying and

(Continued on page 330)



These strong, protective work gloves are the product of one of America's largest textile mills. They are Riegel-controlled—in one plant—from raw cotton to finished glove. This single close supervision of every detail results in unexcelled quality—durability—economy.

"The Right Glove"  "For Every Job"

RIEGEL TEXTILE CORP.
342 MADISON AVE.
NEW YORK 17, N. Y.

Soup's On for a hundred Gauge Sockets

ONE OF THE REASONS 6 OUT OF 10 PICK U. S. GAUGES



WE REAR GAUGES FROM THE LADLE

It is no secret that U. S. is the only gaugemaker building instruments from parts fashioned entirely within its own plants. Sockets, rings, cases, segments, housings and other components of brass, bronze, or iron are cast right in our own

foundries. These foundries have a notable reputation for quality in quantity.

IN GAUGES, IT'S U. S. OVER 6 TO 4 —

For every ten times gauges are selected by original equipment manufacturers, the choice is U. S. in over six. The fact that all operations, casting being one of them, are completed within our own shops contributes to this overwhelming preference. But the real reason is *Manufacturing Control*, a program of checking and double checking to make sure each U. S. gauge leaving the plant is a worthy ambassador of our Company.



← KEEP YOUR EYE
PEELED FOR THIS
GREAT GAUGE CATALOG

Now being rushed to completion. Available soon. Over 100 pages jam-packed with information on gauges, gauge movements and gaugemaking. Gauges double-referenced for ease in selection. Special guide for ease in ordering. Reserve your copy today (no obligation) ... on your business letterhead, please.



SALT FOR THE SOUP—What sand to use, how tight to ram, how fast to pour are the ingredients with which our men, with up to 25 years' experience, season the broth...

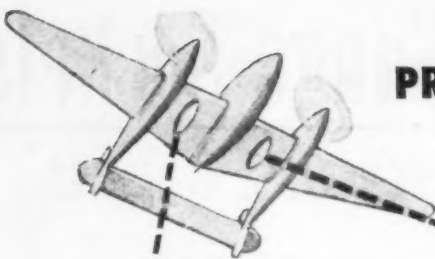


UNITED STATES GAUGE CO.
SELLERSVILLE, PA.

Manufacturers of Pressure, Temperature, Flow,
Electrical and Level Measuring Instruments

U. S. INSTRUMENTS Tell The Truth





PROTECTING THE SKIN OF A FIGHTER'S "EXTRA STOMACH"

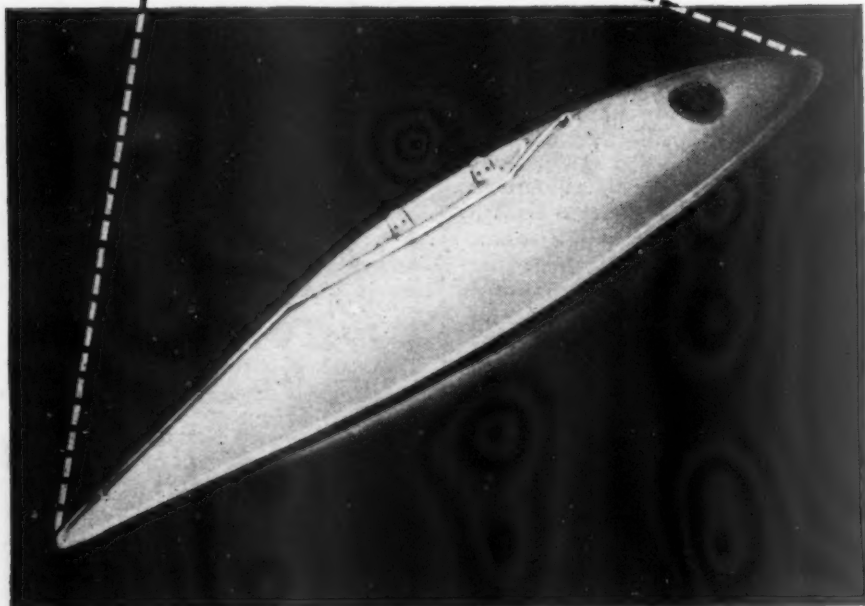


Photo courtesy of Ohio Rubber Co., Willoughby, Ohio, manufacturers of tank shown.

...may suggest peace-time uses for **3-M ADHESIVES**

Sealing fibreboard jettison tanks against the highly volatile aviation gasoline within and the highly destructive moisture without is another of the countless wartime jobs which were successfully handled with 3-M Adhesives. Today these same adhesives are turning their talents to peace-time problems ranging all the way from super-speed package sealing to sound-deadening the new streamliner trains. With more than 800 formulae immediately available, and a sales-research laboratory ready to develop special formulae when needed, it will pay you to investigate the time- and cost-saving features of this modern line of adhesives. As the first step, send today for a copy of our new booklet, "3-M Adhesives in Industry".

Available
in 1 and 5
Gallon Cans
and
55 Gallon
Drums



**MINNESOTA
MINING AND
MANUFACTURING CO.**
GENERAL OFFICES: SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

ADHESIVE AND COATINGS DIVISION - DETROIT 2, MICHIGAN

P1145

Please send a copy of your new adhesive booklet to

Name _____
Title _____
Company _____
Address _____
City _____ Zone _____ State _____



(Continued from page 328)

industrial wheel type tractors, half-track trucks and crawler wagons.

All the listed items are construction machinery and equipment priced under Maximum Price Regulation No. 136 (Machines, Parts and Industrial Equipment).

1 1 1

INCREASED PRICES ON LIME

Jobbers and dealers purchasing lime from manufacturers who have had their ceiling prices increased were authorized by the Office of Price Administration today to pass on the increases in carload lot sales to industrial plants, water companies, city sewerage plants and other dealers where the seller's profit margin is \$1 or less per ton.

The increases may be passed on in sales of building, chemical and industrial lime, excluding agricultural lime.

(Amendment No. 10 to Order No. 1 under Section 25 of Maximum Price Regulation No. 592—Specified Construction Materials and Refractories).

1 1 1

RUBBER BUREAU ISSUES STREAMLINED VERSION OF RUBBER ORDER

The War Production Board announces that its Rubber Bureau has issued a streamlined version of Rubber Order R-1, the general rubber industry control order, which has been revised to conform with rubber conservation needs of the reconversion period.

Although many wartime restrictions that were necessary to conserve rubber and channel production into the most essential end products have been removed from the order, natural rubber, natural rubber latex, butyl (a special purpose synthetic rubber) and chlorinated natural rubber remain under allocation and may be used only in authorized products in permitted amounts. Restrictions on the use of those rubbers will remain in effect until supplies more nearly equal demand, WPB said.

Appendix I has been reprinted as a part of the rubber order. It lists the products that may be manufactured with natural rubber and butyl. Non-tube butyl, which is butyl not suitable for the production of inner tubes, now may be used in the manufacture of several items which previously had to be made with GR-S, the general purpose synthetic rubber.

Certain types of hose, packing and sealing compounds, including rings for sealing glass containers, may now be made with "other than tube butyl."

Frictioned adhesive fabric (not adhesive tapes), used by the printing industry, may now contain 75 per cent natural rubber. For high speed magazine printing rolls, 2.5 per cent natural rubber is now permitted.

Small fan belts for automobiles and for such household appliances as vacuum cleaners and refrigerators will hereafter be allowed a content of nine per cent natural rubber. The wartime small fan

(Continued on page 332)



Like the
CHIPPENDALE
HALLMARK
On
Fine Furniture

KOVEN

Has Been the **HALLMARK of SUPERIOR**
FABRICATED
EQUIPMENT

Since 1881

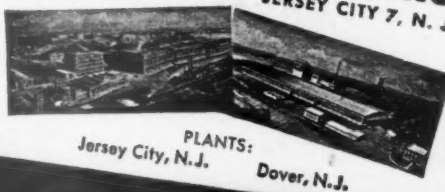
In furniture the name Chippendale represents quality, just as the name KOVEN represents superiority in fabricated equipment.

Since 1881, the vast KOVEN organization has been designing and manufacturing individualized equipment made to specification for some of America's leading industries. During these 64 years KOVEN equipment has gained an enviable reputation for efficiency and economy.

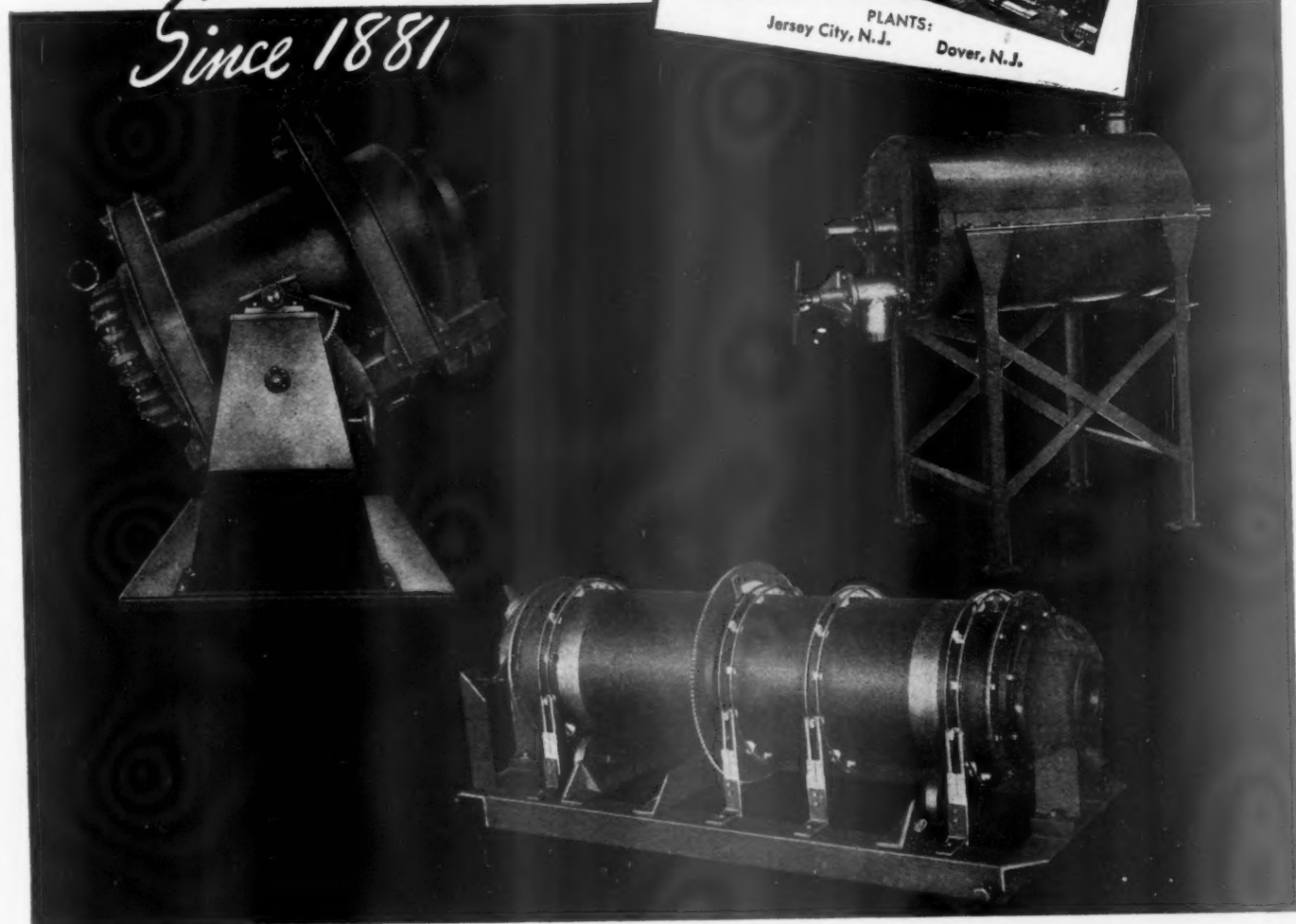
The wide experience of the KOVEN engineering staff is at your disposal to assist you in solving your present day production problems or in making future plans. A consultation does not obligate you in any way. Call or write KOVEN today.

Among the many KOVEN pieces of equipment are: pressure vessels, extractors, mixers, stills, condensers, kettles, tanks, chutes, containers, stacks, coils.

L. O. KOVEN & BRO., INC.
154 OGDEN AVE.
JERSEY CITY 7, N. J.



PLANTS:
Jersey City, N.J. Dover, N.J.



prelude

to disaster....

using the wrong extinguisher
on fires in oils

tars
waxes
paints
resins
greases
lacquer
naphtha
gasoline....



BE SAFE—STANDARDIZE ON PYRENE

Fires in flammable liquids and volatiles are tough and dangerous to combat unless you have the right equipment. Some fire extinguishing agents, excellent for other types of fires, are ineffective and tend to intensify such fires. Pyrene Foam and Vaporizing Liquid extinguishers are designed to kill such fires in their incipency when the volume of volatiles is not large. For larger risks Pyrene Foam extinguishers on wheels and Pyrene Foam Playpipes are indicated. Both employ a flexible, fire-resistant blanket of foam that floats on liquids and clings to solids, thereby excluding all oxygen, without which a fire cannot burn. This is but one of the classes of fire for which various types of Pyrene extinguishers are specifically designed. There's Pyrene fire equipment for every hazard. That's important—and that's why you get maximum fire protection when you standardize with Pyrene. Ask your Pyrene jobber to help you with your fire problems.

BY THE WAY: WHEN DID YOU LAST TEST
THE EXTINGUISHERS IN YOUR HOME?

Pyrene Manufacturing Company

NEWARK 8, NEW JERSEY

Affiliated with the C-O-Two Fire Equipment Co.

(Continued from page 330)

belt made with only one per cent natural rubber has not proved entirely satisfactory. The tonnage of natural rubber needed to improve the quality of these belts is great.

Rubber Order R-1 provides that small amounts of natural rubber and butyl may be used for experimental purposes, but resultant products may not be sold. This will assist in experimentation for reconversion purposes. Other provisions of R-1 include the following:

Rubber inventories remain under control, with a 60-day stock constituting the maximum for natural rubber, natural rubber latex, or any type of synthetic rubber, including chlorinated synthetic rubber. For reclaimed rubber the maximum stock is 45 days, while that for chlorinated natural rubber is 30 days.

Imports of rubber and rubber products are still prohibited, although small quantities of goods may be imported in certain instances for personal use and not resale.

Vehicle manufacturers may obtain tires for new cars by certifying that the tires will be used only on new original equipment and that their stock is not in excess of 15 days' requirements. New tires for civilian replacement use on passenger cars, trucks, busses and motorcycles can be obtained only as outlined in OPA Ration Order I-A.

Natural rubber first quality light weight gloves (surgical gloves) will continue to be sold to doctors and institutions upon proper certification.

DROP FORGING CEILING PRICES INCREASED EIGHT PERCENT

Increases of eight per cent in manufacturers' ceiling prices for drop forgings, metal stampings and screw machine products—in line with reconversion policy to adjust prices to reflect increased direct material costs and labor rates—were announced by the Office of Price Administration.

The increase became effective September 19, 1945, but are applicable to all sales and deliveries made since September 5, 1945, when open billing for manufacturers of these products was authorized.

The increase in prices is provided through issuance of an increase factor of eight per cent which manufacturers may use in computing their ceiling prices for drop forgings, metal stampings and screw machine products under the OPA reconversion program.

The manufacturer of drop forgings, to calculate his ceiling price for one of his products, takes his October 1, 1941, price for the item and multiplies it by the increase factor of eight per cent. The sum of the resulting figure and his October 1, 1941, price is his reconversion ceiling price.

The manufacturer of metal stampings and screw machine products calculates his reconversion price the same way, except that his base price used in making the computation is his price for the item on the base date of March 31, 1942.

(Amendment No. 11 to Revised Maxi-

(Continued on page 334)



3 1/2" HOLES WITH *Speed AND Accuracy*

• Typical of the scope and versatility of CLEVELAND Twist Drills. A 3 1/2" hole drilled in a duralumin aircraft landing gear box plate . . . on a production line drill press!

Whether drilling specifications call for holes .0135" or 4" in diameter, there are CLEVELAND Twist Drills to fit. For

nearly three quarters of a century the ♦ trade mark has represented uniformly high quality and dependability.

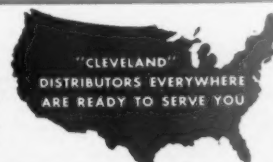
Specify CLEVELAND Twist Drills, Reamers, Screw Extractors, Arbors, Mandrels, Sockets, Mills, Counterbores and Carbide Tipped Tools for all precision production.



The **CLEVELAND**

TWIST DRILL COMPANY
1242 EAST 49th STREET
CLEVELAND

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES
20 THOMAS ST. NEW YORK 9 NORTH JEFFERSON ST. CHICAGO 650 HOWARD ST. SAN FRANCISCO
6515 SECOND BLVD. DETROIT BRUNEL ROAD, OLD OAK COMMON LANE, ACTON, LONDON W.3, ENGLAND





Weights less than
20 lbs... No larger
than a cigar box!

AND NOW...

MORECORDER

THE PERFECT ELECTRONIC DICTATING MACHINE!

- ① Absolutely true voice recording. No scratching or office noises.
- ② Records both ends local and long distance telephone conversations—perfectly!
- ③ For conferences, hospital records, court reporting, spot dictation!
- ④ Leaves your hands free!
- ⑤ Really portable (less than 20 pounds—and no larger than a cigar box)
- ⑥ No fussing with cylinders that break. No shaving.
- ⑦ Lowest initial cost—lowest upkeep cost!

So simple and easy to operate — your secretary will love it! Saves time! Makes work easier! Helps produce more per day! For your new dictating machine — see the MORECORDER in action!

WRITE for the illustrated MORECORDER brochure that will show you what the machine looks like—and how it works. MORECORDER MANUFACTURING CO., Balto. 1, Md., Dept. A-1

IF YOU SAID IT . . . MORECORDER HAS IT!

MORECORDER

THE FINEST ELECTRONIC



VOICE RECORDER

© 1945 BY MORECORDER CO.

(Continued from page 332)

Maximum Price Regulation No. 136 — Machines, Parts, and Industrial Services; Amendment No. 6 to Maximum Price Regulation No. 351 — Ferrous Forgings — both effective September 19, 1945.)

1 1 1

FIVE PERCENT INCREASE IN USE OF FATS AND OILS

A five per cent increase in the use of fats and oils by all industrial users except manufacturers of pharmaceuticals, made possible by an additional allocation of approximately 22 million pounds by the Department of Agriculture, was announced by the Office of Price Administration.

In making the additional allocation, the Department of Agriculture specifically requested that the extra fat be made available to industrial users, excluding manufacturers of pharmaceuticals, OPA said.

Consumers and restaurants generally using both meat and fats have benefitted from recent point value reductions, OPA pointed out. The increased allocation announced today will permit industrial users of single commodities like fat to share in the currently increased supplies.

The factors established for the fourth quarter, for bakers and other cereal products manufacturers (Classes 1, 2 and 3), permitted a rate of use at the present point value of 70 per cent of their usage during the fourth quarter of 1942. The rate of use for pharmaceutical manufacturers (Classes 14 and 15) remains unchanged at 90 per cent of their 1942 usage. For all other classes of industrial users the factors provided 60 per cent of their 1942 usage.

The additional allocation permits all industrial users, except makers of pharmaceuticals, to increase their rate of use five per cent. Because the permitted increase will use up industrial users' allotments of ration points more quickly. An adjustment will be made to compensate for this increased rate of use later during the fourth quarter, OPA said.

1 1 1

CONSIDER AUTHORIZING IMPORT OF JUTE GOODS

Consideration is being given to authorization of imports of miscellaneous jute goods under General Imports Order M-63 for consumption in the United States, the War Production Board announces.

Included in the miscellaneous category are such items as linoleum burlap; padding and interlinings; woven jute fabric for the manufacture of carpets and felts; webbing, sacking cloth and tarpaulin for upholstery; bagging for covering cotton and hop cloth for baling hops.

All persons desiring to participate in such imports are requested to file an application on form WPB 1041 with WPB, Washington 25, D. C., Reference M 63 before September 11, 1945.

Such applications should give a complete description of the material involved, the source from which it will be obtained.

(Continued on page 338)

Reconversion Problems?

BREEZE is a Reservoir of Manufacturing Skills and Facilities



BREEZE
serves these fields:

- AVIATION
- AUTOMOTIVE
- COMMUNICATIONS
- CONSTRUCTION
- ELECTRONICS
- GENERAL MANUFACTURING
- PLASTICS
- TRANSPORTATION
- and many others

THROUGH diversified manufacturing operations covering a period of nearly two decades, Breeze has built up a vast reservoir of skills and facilities which now may be tapped by manufacturers faced with reconversion problems. Already Breeze has helped two producers of consumer goods to recapture pre-war markets . . . and turn a handsome profit while their competitors were still trying to figure out what to do about re-tooling for peacetime production. And in the same manner that it has helped others, Breeze may be able to help you.

Breeze has available, on a subcontracting basis, resources of versatile equipment and "know-how" ranging from the planning, engineering and production of intricate electronic devices . . . to the manufacture of hardened steel parts.

During the war years these resources enabled Breeze . . .

...To solve many complex problems for the Armed Forces with the ingenuity born of 19 years of experience in the design and manufacture of products developed to meet the exacting requirements of the aviation industry.

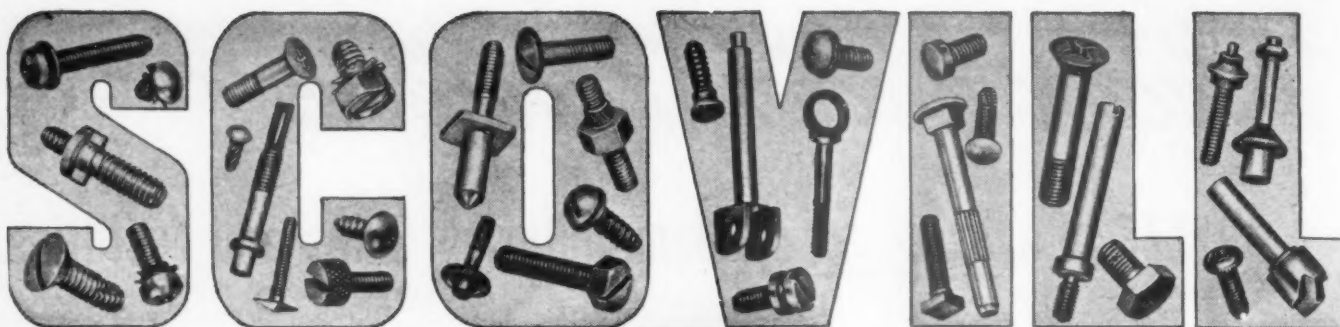
...To produce in vast quantities for war such precision items as Breeze Radio Ignition Shielding, Flexible Conduit and Fittings for aircraft, automotive, tank and marine engines; Aircraft Tab Control Mechanisms, Electrical Connectors, Flexible Shafting and Casing, light-weight Armor Plate and countless other specialties.

Today, properly applied, the Breeze processes, equipment and techniques which made so many

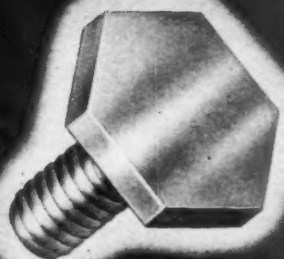
important contributions to Victory may enable you to get goods back on the market months ahead of your competition. The wide variety of services Breeze offers are described graphically in "Planning for Reconversion". Send for your free copy of this interesting booklet today. It may suggest a direct adaptability of Breeze skills and facilities to your commercial production needs.

BREEZE
Corporations Inc.

NEWARK 7  NEW JERSEY



**FOR SPEED
AND PRECISION
IN THAT VITAL
ASSEMBLY JOB**



**PLAN
FASTENINGS
NOW**

"Cold-forging"—proof #35...more each month

Play Safe—Plan Today:

This period of increased competition demands fast, precise assembly, calls more and more for fastenings of special design. Planning fastenings in the product-design stage may well solve your vital assembly problem. Early action enables you to make the exact choice—a featured standard fastening or a part especially designed to meet your specific requirements. No assembled product is better than its fastenings—and no fastenings are better than Scovill fastenings.

Play Safe—Choose Scovill:

Years of specialized experience in fastenings qualify us to help you make that exact selection—our demonstrated ability in special design* makes Scovill your logical choice.

This, plus our special processing, our ingenuity in cold-forging, means a substantial saving in *money—materials—motions*.

Call A Scovill Fastenings Expert Today

*Illustrated above is one of many special-purpose items—proof of Scovill ingenuity in cold-forging and ability in special design.

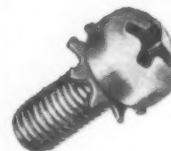
3 Standard Fastenings for Production Efficiency



1 Phillips Recessed Head Screws—The modern, effective, time-saving fastening device proven in tens of thousands of assembly lines. Other standard head styles are also available.



2 Self-Tapping Machine Screws—Eliminate separate tapping operations for fastenings to castings, heavy gauge sheet metal, and plastics. Also available with Phillips Recessed Head.



3 Washer-Screw Assemblies—When use of lock washers is indicated, the time-saving of pre-assemblies is obvious. Also available in standard slotted head styles.

SCOVILL MANUFACTURING COMPANY

WATERVILLE SCREW PRODUCTS DIVISION

WATERVILLE 48, CONN.



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NEW YORK, Chrysler Building • DETROIT, 6460 Kercheval Avenue • CHICAGO, 135 South LaSalle Street • PHILADELPHIA, 18 W. Chelton Avenue Building
PITTSBURGH, 2882 W. Liberty Ave. • SYRACUSE, Syracuse • Kemper Insurance Bldg. • LOS ANGELES, 2627 S. Soto St. • SAN FRANCISCO, 434 Brannan St.

"Van Dorn"
**No. 12 Positive Clutch
 Power Driver \$58.00**
 Just one of 19 models, with a wide choice of capacities,
 speeds, clutches, angle heads and handles.

Grid of fastener types: SCREW, HEX HEAD, PHILLIPS HEAD, HEX HEAD, SQUARE HEAD, FILLISTER, ROUND, HEX SOCKET, COUNTERSUNK OVAL, STOVE, TRUSS, SUNK, WASHER, PHILLIPS HEAD, WASHER, FILLISTER, COUNTERSUNK OVAL, HEX HEAD.

Power to Drive Anything

... and drive down your assembly costs!

Van Dorn Electric Screw Drivers and Nut Runners come in models to suit every type of assembly work—from the most delicate screw driving operations to driving and tightening nuts and bolts up to 1" diameter, or lag screws up to $\frac{3}{4}$ " x 6".

To fit your work exactly, you can get Van Dorn Power Drivers with Positive Clutches that assure top speed production . . . with Adjustable Clutches for greater uniformity that cuts down rejects under inspection . . .

with Right Angle Heads and Side or End Handles that make it easy to reach any location, thus minimizing operator strain and fatigue.

Get full information about these cost-cutting tools from your Van Dorn Distributor and order now. Or write for our 60-page, illustrated "Power Assembly Tool Data Book"—full of information about all models and their many applications. Address: The Van Dorn Electric Tool Co., 764 Joppa Road, Towson 4, Md.

For Power
Specify

"Van Dorn"
 (DIV. OF BLACK & DECKER MFG. CO.)
PORTABLE ELECTRIC TOOLS



Mr. Fillet Weld BETTERS WORKING CONDITIONS

Mr. Fillet Weld is the friend of the working man. He helps make walk-ways and stair treads better working places

for these reasons:

1. Safer—the Fillet Welded Hex Bar structure makes BATES • GRATES safer. The crisp edges shed grease, dirt and water—reducing chances of accidents.

2. Better lighting—the reflecting bevels of the Fillet Welded Hex Bars, with 90° corners, allow maximum transmission of light through the grating. There are no "dungeons" underneath BATES • GRATES.

3. Better ventilation—the Hex design not only promotes good lighting but also provides good air circulation, thereby increasing working comfort.

for open steel flooring, stair treads, floor armor and bridge decking...
Get a bid from Bates



(Continued from page 334)

the end use for which it is desired, and the total net weight in pounds of the quantity for which application is made.

In the case of linoleum burlap, application should be made by the consumer, who may purchase, if his application is granted, either directly or, upon authorization from the War Production Board, through such importers as he may specify. In the case of all other products, application should be made by the importer.

WPB stressed that since the quantity of miscellaneous jute goods that may be approved for import is extremely limited, no indication can be given as to the quantity of each product that may be authorized until opportunity has been had to review all requests submitted.

Burlap, as defined in Order M-47, brattice cloth, and finished jute bags of all kinds are not covered by this program.

ALLEGHENY LUDLUM ANNOUNCES LARGE POSTWAR PROGRAM

A \$5,000,000 postwar research and production expansion program has been approved by the Board of Directors of the Allegheny Ludlum Steel Corporation, according to President Hiland G. Batcheller Pittsburgh, Pa.

An ultra-modern research laboratory and related experimental and pilot plant equipment will be built at company headquarters, Brackenridge, Pa., to intensify studies of the structure, melting, processing and further development of high alloy steels.

At the West Leechburg, Pa. plant will be constructed a cold rolling mill of latest design, for rolling stainless and silicon strip steels. It will add materially to the capacity of the plant and will bring new precision and uniformity of quality in the production of the special strip steels made there.

TO FILL "BIG INCH" PIPE LINE WITH WATER

The Surplus Property Administration has agreed to a proposal by the Petroleum Administration for War that oil in the "Big Inch" pipeline be emptied by pumping in water. The "Big Inch" runs from Longview, Texas, some 1250 miles to New York Harbor. Up to August 31st it had transported 260,750,000 barrels of crude oil. The "Little Big Inch" runs 1475 miles from Beaumont, Texas to New York and up to August 31st had transported 156,000,000 barrels of petroleum products. The latter was closed down on September 30th and petroleum fill displaced with water treated with sodium hydroxide.

STOCK FIR DOORS STANDARD

Stock Fir Doors Commercial Standard CS 73-43, is announced by the Division of Trade Standards of the National Bureau of Standards, Washington, D. C. Mimeographed copy TS-3991 of the accepted standard, is now available.

LUMBER AT ALL-TIME LOW

No appreciable replenishment of lumber stocks, which are now at an all-time low, can be expected during the fourth quarter of 1945 because of sharp cuts in production, the War Production Board reports.

With the reduction in military requirements immediately after the end of the war, it was expected that lumber production would be sufficient to meet current needs and add approximately 1,000,000,000 board feet to mill and distributors' stocks by the end of the year. However, because of continued low production and present curtailment due to West Coast strikes, little or no lumber will be available for building up stocks, WPB said.

Mill and concentration yard stocks, as of July 31, totaled 3,290,636,000 board feet, and represented only a normal seasonal increase of 1 per cent from the position of these stocks June 30.

POCKET EDITION OF UNITED NATIONS CHARTER OFFERED BY CLARK EQUIPMENT

Business men who have not familiarized themselves with the San Francisco Charter will welcome the handy pocket size booklet containing the Charter's complete text, sponsored by George Spatta, president of Clark Equipment Company, Buchanan, Michigan.

"American industry has a vital inter-
(Continued on page 340)

"DIE-LESS" DUPLICATING

SAVES MAN POWER AND DELAYS!

DIE ACCURACY WITHOUT DIES

Send for CATALOG

BENDER

SHEAR

BRAKE

**"DIE-LESS"
DUPLICATING**

The Die-AGRO System of METAL DUPLICATING Without Dies

DIE-LESS
PRECISION MACHINES
DIE-LESS DUPLICATING

O'NEIL-IRWIN MFG. Co.

305 EIGHTH AVE. SO., MINNEAPOLIS, MINN.

What to use

WIREMOLD

METAL RACEWAY WIRING SYSTEMS

COMPLETE WIRING INSTALLATION FROM PANELBOARDS TO OUTLETS

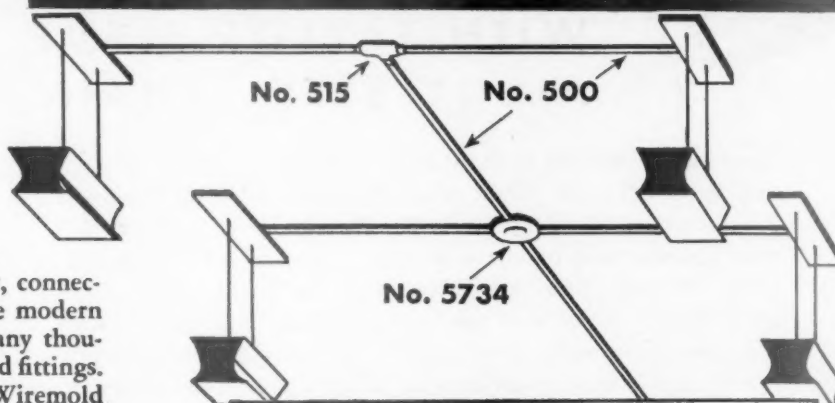


WHERE TO USE THEM



The Field Branch of the Navy Bureau of Supply & Accounts in Cleveland has been cited by a Congressional Investigation Committee for a "striking demonstration of Government efficiency" Here 3,200 military and civilian workers furnish financial services for some 3,000,000 Navy personnel and nearly 7,000,000 dependents, handling in the neighborhood of \$200,000,000 worth of business per month. Naturally, excellent lighting is a vitally important part of this installation and, as the photograph and diagram show, connection between existing wiring and the modern fluorescent units is made through many thousands of feet of Wiremold raceways and fittings. This is a typical example of how Wiremold makes possible better lighting through better wiring in every type of building.

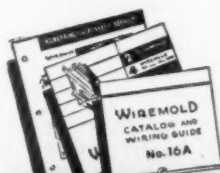
HOW TO USE THEM



The Wiremold Cutout Tool for cutting fixture canopies to receive Wiremold raceways is now available on loan, and later, when materials are more plentiful, will be manufactured for sale. Write us for details.

PRODUCTION EXECUTIVES

There are many unusual ways in which Wiremold can help you save motions, speed production and assembly through efficient "wiring for work". Write us for Wiring Guide, industrial bulletins and data sheets.



THE WIREMOLD COMPANY
Hartford 10, Connecticut



KNOW YOUR WIREMOLD . . .

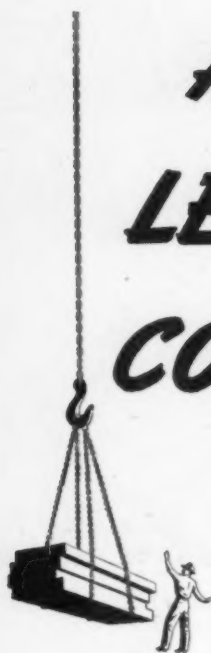
BUSINESS BUILDER IN TOMORROW'S MARKET FOR ADEQUATE WIRING



SOLD THROUGH ELECTRICAL WHOLESALERS . . . INSTALLED BY ELECTRICAL CONTRACTORS . . . EVERYWHERE!

GREATER SAFETY

AT LESS COST

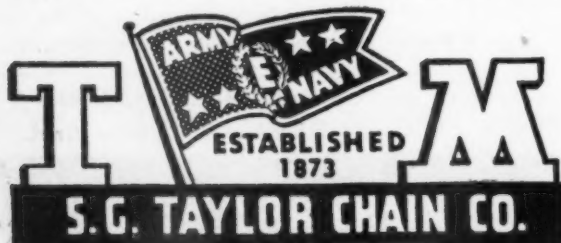


WITH TAYLOR MADE ALLOY STEEL CHAIN

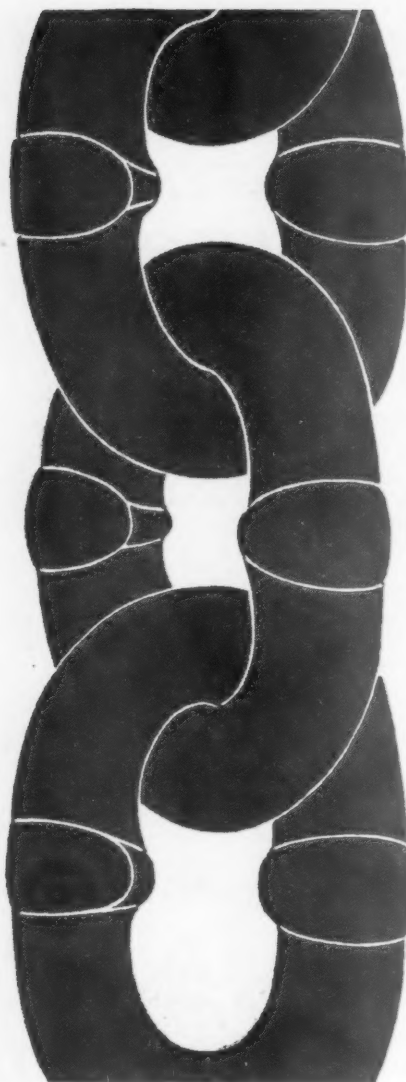
Your safety margin is increased—your costs reduced, when you specify Taylor Made Alloy Steel Chain. Alloy steel—its greater strength and other superior characteristics, plus Taylor's well known skill in chain manufacture, make this possible.

Safety engineers, superintendents, foremen—chain users everywhere—agree that use of Taylor Made Alloy Steel Chain reduces chain wear, lowers maintenance costs, increases safety.

Its application is unlimited—steel mills... foundries... forge shops... water-ways... construction projects—wherever chain of high tensile strength is desired. Write today for further details or phone your mill supply distributor.



Box 509P11 • Hammond, Indiana



(Continued from page 338)

est in international policies", states Mr. Spatta; "and a knowledge of our nation's commitments in the field of international affairs is essential to an understanding of the effects of foreign policy upon our national economy."

In addition to the Charter text, the booklet lists those nations which have already ratified the Charter, and provides space for recording approval by other nations.

Any executive desiring a copy of the booklet may obtain it by writing to Mr. Spatta on a business letterhead.

AIR EXPRESS SERVICE TO MEXICO

Expanded air express service to and from Mexico via facilities of Braniff Airways is announced by the Air Express Division of Railway Express Agency.

Publication of a new international air express tariff by Braniff has established cargo rates on flights between Dallas-Fort Worth, Laredo and San Antonio, Texas and Ciudad Victoria, Merida, Puebla and Vera Cruz, Mexico. Mexican Points already being served by this airline include Mexico City, Monterrey and Nuevo Laredo.

Of these new air express points, Merida and Vera Cruz are now on routes of Pan American World Airways while Ciudad Victoria is on a route of PAA's subsidiary, CMA.

The rate schedules covering this extended service have been distributed to all express offices and a further increase in international air express traffic is anticipated, the Agency stated.

SISAL ROPE RESTRICTIONS REMOVED

As a result of substantial reductions in military requirements for sisal rope, all restrictions on the uses of rope made from agave fiber have been removed the War Production Board announced.

This action was taken by amendment to Conservation Order M-84 (Cordage Fiber, Cordage Yarn, Cordage and Hemp Fiber), which controlled the production and distribution of rope and rope fibers throughout most of the war period. The title of the amended order has been changed to Order M-84 amended, Manila (Abaca) and Agave Fiber and Cordage.

The amended order also eliminates the former requirement that rope made from agave sisalana fiber (sisal), with certain exceptions, shall contain a proportion of American hemp line fiber as an extender. The use of American hemp as an extender is in no way prohibited, but is no longer required, WPB said.

In addition, the amended order permits the use of agave fiber for heading twine and lobster marline, both used in the commercial fishing industry. No further relaxation over the use of agave for twine has been effected, it was pointed out. The continued world shortage of manila fiber prevents any relaxation of restric-

(Continued on page 342)



SEYMOUR NICKEL SILVER

THE "BODY" OF MUCH OF THE FINE SILVERWARE
MADE IN THIS COUNTRY

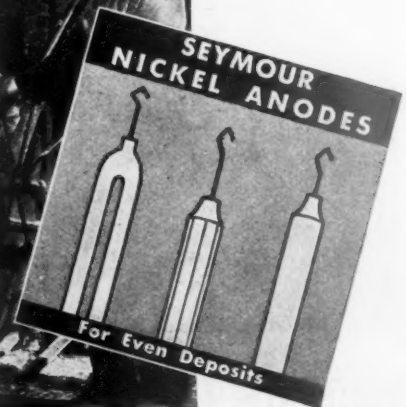


A Silvery White, Corrosion-Resistant Alloy Capable of Wide Application to Product Design

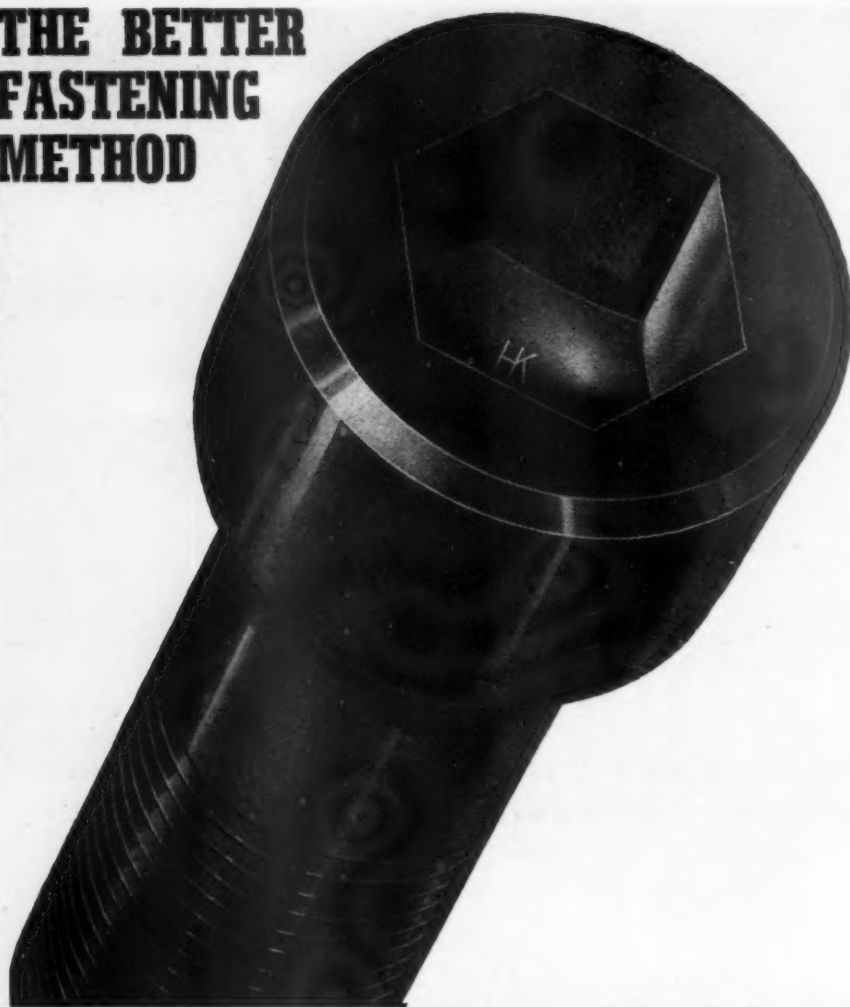
SEYMOUR NICKEL SILVER is an alloy of copper, nickel and zinc. The nickel content ranges from 5% to 30%, with 18% the most used. It has a silvery white color, good corrosion resistance and will take a high polish — qualities which make it an excellent base for silver, chrome and nickel plating.

A very versatile alloy, it takes a wide range of ductility from dead soft to spring temper, and can be cold drawn, rolled, hammered, stamped or spun . . . usually without frequent anneals, though it can be readily annealed at any working point. May be had leaded for free cutting on lathe or screw machine. Samples and suggestions for its application free on request.

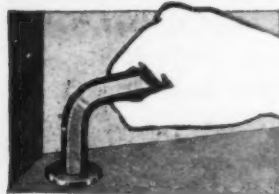
THE SEYMOUR MFG. CO., SEYMOUR, CONN.
NONFERROUS ALLOYS SINCE 1878



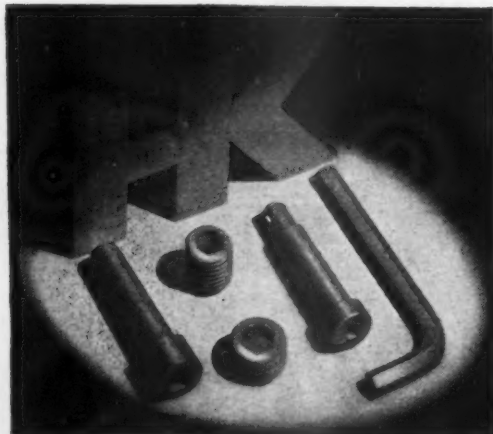
THE BETTER FASTENING METHOD



HOLO-KROME



**INTERNAL
WRENCHING**



fibro-forged SOCKET SCREWS

Industry is taking advantage of its war-time experience in the use of Holo-Krome Socket Screw products, by incorporating them in the design and the redesign of its peace-time products . . . New applications for Holo-Krome FIBRO FORGED Screws—the Completely Cold Forged Screws—are increasing daily. . . Unfailing performance is the Holo-Krome guarantee. . . Save weight, space and assembly time, specify "Holo-Krome". **The Holo-Krome Distributor is ready to serve you.**

THE **HOLO-KROME** — SOCKET SCREW PRODUCTS —
SCREW CORP. HARTFORD 10, CONN. U. S. A.

(Continued from page 340)

tions governing the use of manila, WPB's Cordage Branch emphasized.

The amendment simplifies the order by reducing the cordage end-use list (Schedule A) to the permitted uses of rope made from manila fiber.

Simultaneously, import restrictions on agave products, including cordage and twine, carpet yarn and fabrics, and al-pargatas (rope sandals), were removed through amendment of General Imports Order M-63. The action was taken in accordance with WPB's policy of removing import controls as rapidly as possible were no longer needed.

WPB pointed out that agave fiber, including henequen and sisal fiber is still subject to import control under Order M-63.

1 1 1

AIM TO CONSERVE BYPRODUCT COAL AND COKE

In order to conserve a critically short supply of byproduct coal from which coal gas is manufactured, the War Production Board has directed gas manufacturers to put into maximum operation at once all facilities for the production of water gas or gas manufactured from oil and coke.

Order U-10, recently announced, furthermore calls for the full use of other fuels whenever standby facilities are available to consumers of manufactured gas.

Concurrently, WPB has issued Direction 4 to PR-32, effective October 15, for the purpose of preventing excessive inventories of coke since the short supply of coal is also causing a loss of coke production. Industrial users, including utilities, will be restricted to a 20 day supply of all coke.

In effect, WPB said, the Direction is in line with the general WPB policy of taking any action necessary to prevent stockpiling of scarce materials. WPB pointed out that coke must be conserved to permit the increased production of water gas and its substitution, whenever possible, for coal gas.

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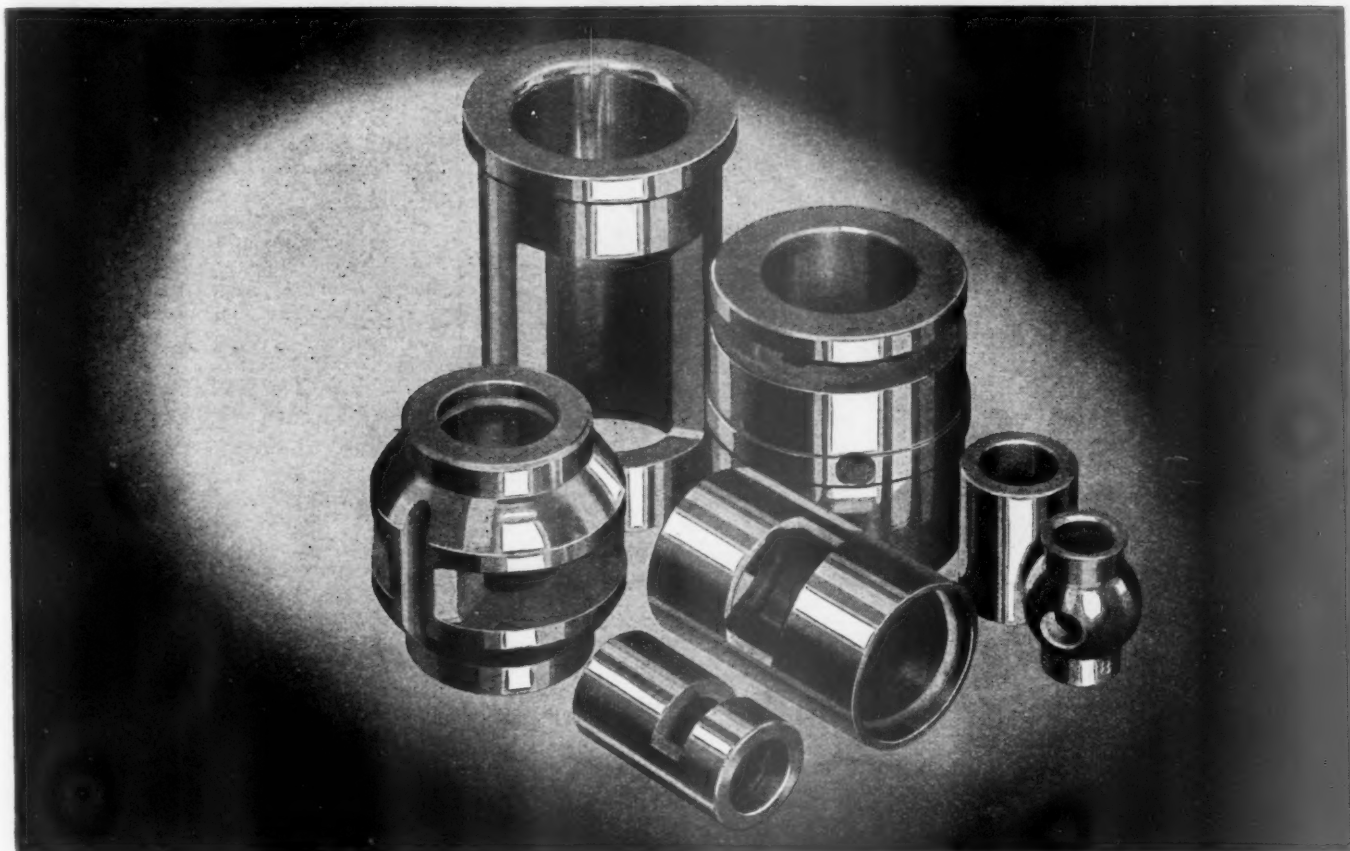
PURCHASING AGENTS AVAILABLE TO PRIVATE INDUSTRY

Purchasing agents from many fields who are serving the War Production Board are now available to private industry, it is announced by John A. Warner, Director of Region 2, consisting of New York State and northern New Jersey.

"The end of the war," Mr. Warner states, "has terminated many of the Board's activities, thus making possible the release of these specialists who have unselfishly remained with the Board until their tasks were completed, even though many had opportunities to return to private industry months ago at considerably increased compensation."

It is emphasized that the personnel now available have had repeated contacts with many trades and businesses during their association with the Board, thus expanding their knowledge of industry as a

(Continued on page 344)



Electric Motor Bearings

The performance and the service that you gain from your electric motors depends to a very great extent on the bearings you install. Quality should be your first thought when purchasing bearings—either for new equipment or for replacement.

Johnson Electric Motor Bearings are the highest quality available. Cast in a special high lead bronze alloy they deliver the smoothest performance for the greatest period of time. The plastic quality of this alloy permits a reasonable amount of overloads, misalignment, and prevents grit from scoring the shaft.

Johnson Electric Motor Bearings are usually available from stock for over 250 different types of motors. Each bearing is completely machined to the correct tolerances . . . ready for immediate installation. Oil holes, slots or grooves are in accordance with the requirements of the motor.

The next time you need bearings, specify Johnson Bronze. Test them in comparison with any you have ever used. See for yourself the extra service and performance you gain.

Catalogue

72 Pages listing and describing the most complete bearing service available. Electric Motor Bearings are illustrated. Write for your copy TODAY.

JOHNSON
SLEEVE BEARING
450 S. MILL STREET

The
MOST
COMPLETE
SLEEVE
BEARING
SERVICE
in the
WORLD

BRONZE
HEADQUARTERS
NEW CASTLE, PA.

*Cut hardest
alloys with -*

**GRIFFIN
HIGH SPEED STEEL
POWER SAW
BLADES**



If your problem is sawing stainless, chrome, nickel or similarly hard, tough steel, here's your blade! High speed tungsten steel, tempered specially for quantity cutting of hardest metals. Raker set teeth, specially milled. . . . Toughest member of the Griffin line of hack saw blades for handling difficult cutting problems—including:

Griffin Molybdenum High Speed—For cutting all but the very hardest alloys, with extreme speed and greatest economy. Power and hand sizes.

Griffin Soft Center—Specially tempered for flexibility along with the toughness of an all-hard blade. Hand sizes only.

Griffin Non-Strip—Extremely tough hand blade that cuts thinnest sheet and tubing without tooth breakage.

Your local Griffin distributor has these Griffin special blades. . . . If you have an extra-difficult metal-sawing problem, consult us—without obligation.

Write for Free Griffin Blade price list.

General Sales Agent

JOHN H. GRAHAM & CO. INC.
105 Duane St., New York 8, N. Y.

GRIFFIN 

Hack Saw Blades

MADE BY G. W. GRIFFIN CO., FRANKLIN, N. H. • 1880-1945

(Continued from page 342)

whole. "Moreover," Mr. Warner adds, "these men and women have mastered the technique of co-operation between business and Government. Such an asset will become increasingly valuable to any firm, particularly during the reconversion period."

Employers desiring to interview purchasing specialists are invited to write to the Regional Director, War Production Board, Empire State Building, New York, 1, N. Y.

1 1 1

**CORRECT CLASSIFICATION MAKES
FOR FREIGHT SAVINGS**

Linseed, Chinawood, Fish or Sea Animal, Oiticica, Perilla and other oils including Esterified Tall Oil, are rated carloads fifth (5th) class (35% of 1st class) in Official Classification No. 60—6FC 16—and fifth class, New York to Chicago, for example, is 58¢—a carload of 50,000 pounds at 5th class rate earns \$290. But these oils are rated "Class 32.5J" by virtue of Curlett's Tariff 90-J Exceptions to Official Classification—and "Class 32.5J" New York to Chicago for example is 49¢ (instead of 58¢) a difference of 9¢ per 100 pounds or \$45 per 50,000 pounds carload. The "Exceptions" tariff takes precedence over the Official Classification—but to enjoy the more favorable "Exceptions" rating the commodity must be specifically and correctly described in the terms of the Exceptions tariff. Linseed oil must be described in the Bill of Lading as "Linseed Oil" . . . not as Paint Oil or some other designation deemed appropriate—the same with Castor, dehydrated, Esterified Tall Oil, etc. *National Paint, Varnish & Lacquer Association.*

1 1 1

**TECHNICAL BROCHURE RELEASED
ON STAINLESS STEELS**

A colorful new brochure containing valuable information and technical data on stainless strip steels has just been released by Superior Steel Corporation, Carnegie, Pa., manufacturers of hot and cold rolled stainless strip steel. Illustrated throughout, the brochure describes properties, compositions and applications of various types and grades of stainless steel, in detail sufficient to be of value to designers and fabricators.

The brochure also tells of more than a half century's specialization in the manufacture of fine strip steels by Superior Steel Corporation, and its concentration on research, production and sales.

In addition to technical tables on each type of stainless strip steel, the brochure includes tables on physical and mechanical properties of certain metals and alloys and a table on weights of steel strip. Corrosion resistance of the austenitic, martensitic and ferritic types of stainless steel is also shown, with a comprehensive list of the various chemicals and solvents which each type resists.

Copies of the brochure may be obtained from this publication or direct from Superior Steel Corporation, Carnegie, Pa.

... It's the magic of
Extrusion

... plus "know how" and
careful supervision that assures
you extra strength and safety in

CLEVELAND

Top Quality
FASTENERS

Cleveland Cap Screws and special headed and threaded parts are made by the Kaufman Double Extrusion Process, originated in our plant—a factor which adds extra strength to both full finished and high carbon heat treated products. All sizes—even including one inch diameter—are made by this process.

CLEVELAND
Top Quality
FASTENERS

The Cleveland Cap Screw Company

2933 EAST 79TH STREET • CLEVELAND 4, OHIO

Warehouses: Chicago, Philadelphia, New York, Los Angeles

Ask your Jobber for Cleveland Fasteners

MADE BY THE ORIGINATORS OF THE KAUFMAN PROCESS FOR GREATER STRENGTH AND ACCURACY

Industry's Choice for General Maintenance Work

For many years the Simplex No. 22 has been the most popular all-around jack for industrial plant use—for general maintenance work and for moving machinery and heavy loads. This single-acting automatic lowering jack combines speed and lifting range with the ample safety factor that is built into all Simplex Jacks.



Simplex No. 22, 10-ton capacity, 12½" lift. Height closed, 21¼". Toe lift, 2¼" from ground level. Also furnished with non-rotating chain cap.

Templeton, Kenly & Co.
Chicago (44) Ill.

Simplex
LEVER SCREW HYDRAULIC
Jacks

New National Directory of Commodity Specifications

The National Directory of Commodity Specifications, first published in 1925 and issued in revised form in 1932, has again been revised and enlarged and is now available to all who wish to have a complete compilation of standards and specifications having national significance.

This publication is something more than a mere listing of titles. It contains in its more than 1300 pages brief summaries of the contents of each specification, arranged according to a comprehensive plan, and tells where the specification may be obtained.

In compiling the material, information was sought from trade associations, technical societies, governmental agencies and other sources, the intent being to include every standard or specification that was in general use. Each document was examined to determine its particular place in the general system of arrangement and was summarized to give the reader a convenient means of determining whether it was useful to him.

Specification writers, purchasing agents, and those interested in the improvement or unification of standard specifications may now locate specifications with minimum effort.

The directory lists by title, designating

number, and sponsoring organization, the specifications and methods of test for all commodities regularly produced in this country. Each specification is also briefly summarized as to technical characteristics, scope and special applications.

These special features will aid the user of the Directory to select specifications to his particular needs, and will make it indispensable to all large buyers whether Federal, municipal or other.

The enumeration of standards and specifications covers those adopted by the national, technical and trade associations and those agencies which speak with the authority of the Federal Government as a whole. Included also are the purchase specifications of several departments and establishments of the Federal Government.

The subjects and titles are grouped in accordance with a decimal system of classification, are adequately cross referenced, and are provided with a comprehensive index.

The Directory, Misc. Pub. M178, is available from the Government Printing Office, Washington, D.C.; price \$4.00 in the United States and possessions, Canada, Cuba, Mexico, Newfoundland, and certain central and South American Countries. Foreign, \$6.25.

ASA TO DEVELOP WOOD POLE SPECIFICATIONS

The American Standards Association has been requested by the government to use its emergency procedure in developing specifications for wood poles made from jack pine, red pine, western white pine, inland types of douglas fir, western hemlock, western larch, and certain other miscellaneous species.

Prime purpose of this job will be to conserve our natural timber supply; and secondly to channel the production and use of poles so that all purchasers will have a fair share of the available timbers.

"War needs have depleted our timber supply to an extent that we do not yet fully realize," says Dr. R. H. Colley of Bell Telephone Laboratories, Inc., who is an authority on pole production and use and one of the country's experts on wood preservation. During the war years use of poles has been cut in half by war-time restrictions, leaving a big pent up demand for poles that will hit the market now that the restrictions have been removed. Based on statistical information appearing in the proceedings of the American Wood-Preservers' Association this potential demand for poles is likely to run to at least four million poles a year during the next few years. As a result of this situation conservation of our timber supply is not only advisable but imperative, if all pole users are going to get the products they need.

As a further conservation measure the specifications will aim at treatment of

every pole with wood preservatives so that poles will last as long as possible. The specifications will, of course, also cover prohibited and permitted defects, such as sap stain, twist stain, insect damage, knots, scars, etc.

COMMERCIAL MOTOR VEHICLE RATIONING ENDS DEC. 1

The rationing of all new commercial motor vehicles including trucks, tractors and trailers will be terminated Dec. 1, 1945, the Office of Defense Transportation announces today.

On and after that date, Guy A. Richardson, director of ODT's highway transport department, said "A free market will then obtain in the purchase and delivery of commercial motor vehicles: truck sales will be a matter involving buyer and seller except as regulated by agencies other than ODT."

The termination of rationing was effected through the revocation and periodic elimination of various sections of General Order ODT-44A and Administrative Order ODT-27A. The ODT explained that the steps by which the rationing controls and procedures will be lifted are as follows:

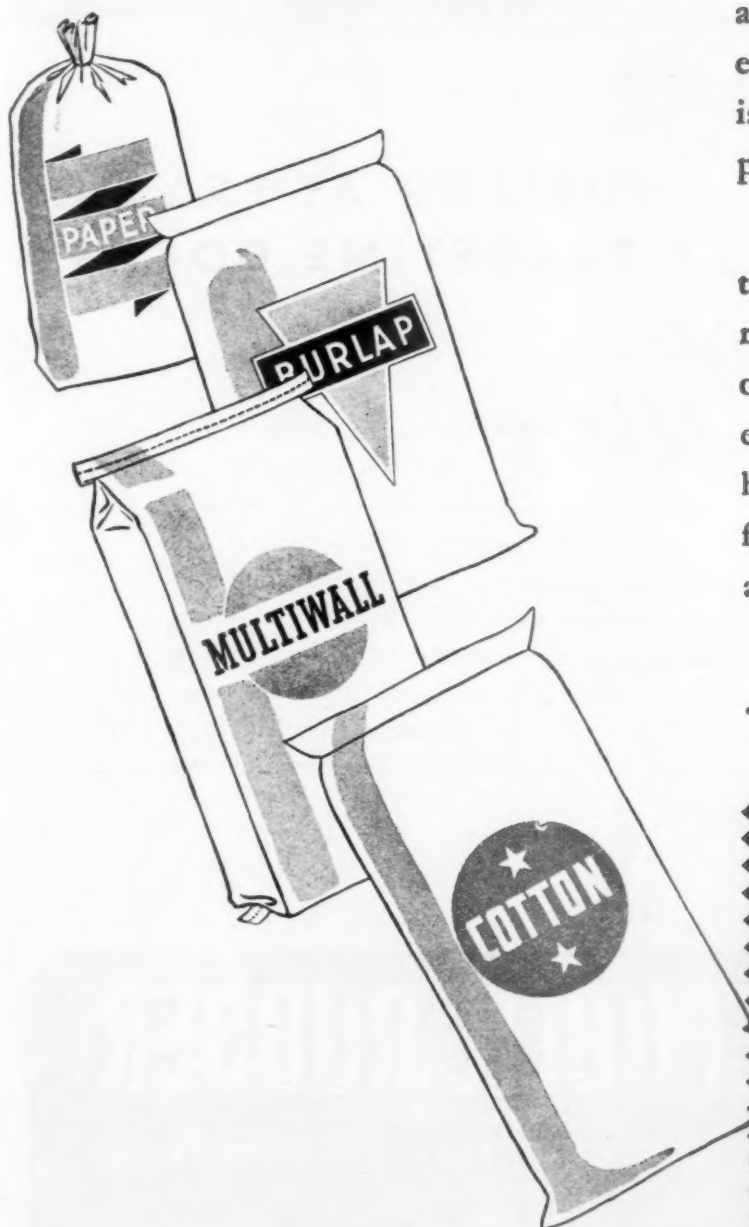
Persons desiring to obtain a new commercial motor vehicle are no longer required to file an application with the ODT. They may simply place a firm order for the desired vehicle with the dealer of their choice, provided that the

(Continued on page 350)



Whatever's the **BEST BAG FOR YOUR USE**

...we make it!



WHEN you buy your bags from Bemis, among the important advantages you enjoy is this: You can buy whatever type is best for your particular use—cotton, paper, multiwall, burlap or waterproof.

Bemis is a leading producer of *all* types of bags and consequently has no reason to high-pressure you toward any one type. We have no favorites. If our experienced packaging specialists can help you to determine which is the best for your use, you may be sure that their analysis and advice will be unbiased.

Whatever's the *best bag for your use* ... we make it.

BEMIS BAGS



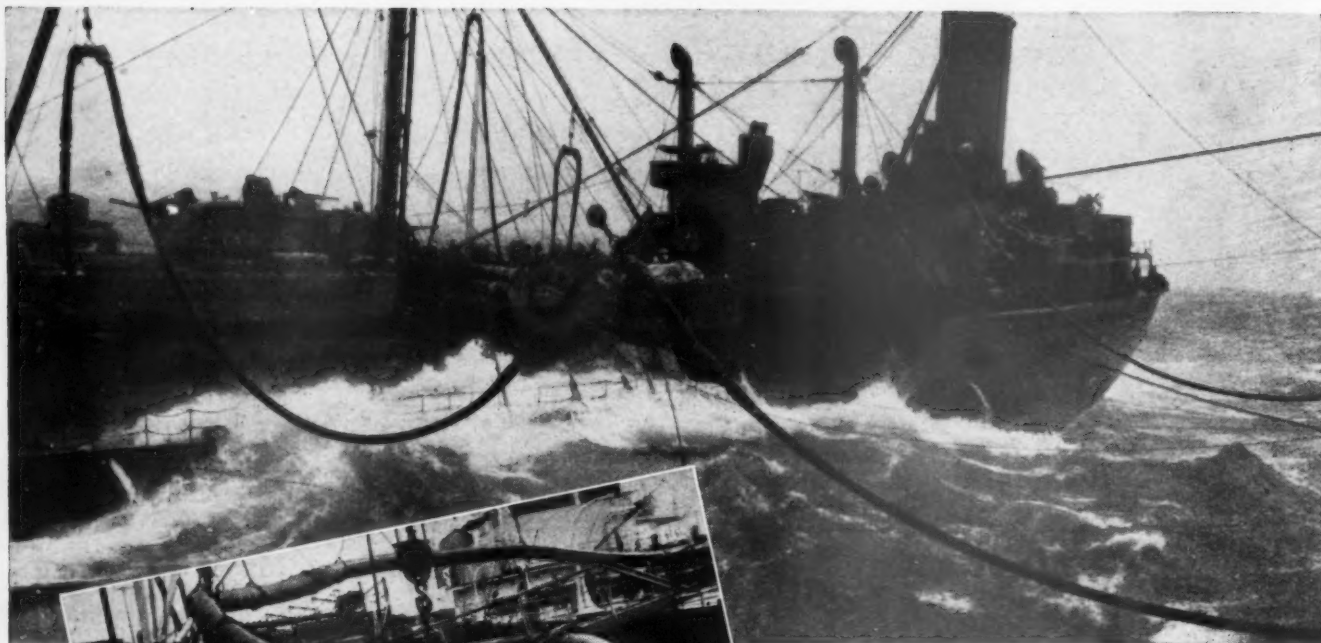
BEMIS BRO. BAG CO.

OFFICES: Baltimore • Boston • Brooklyn • Buffalo • Charlotte
Chicago • Denver • Detroit • East Pepperell • Houston • Indianapolis
Kansas City • Los Angeles • Louisville • Memphis • Minneapolis
Mobile • New Orleans • New York City • Norfolk • Oklahoma City
Omaha • Orlando • Peoria • St. Helens, Ore. • St. Louis • Salina
Salt Lake City • San Francisco • Seattle • Wichita • Wilmington, Calif.

BETTER BAGS SINCE 1858



East Pepperell, Mass.



Official U. S. Navy Photograph

FUELING AT SEA OR AT PEACETIME DOCKS

*Oil Suction
and Discharge
Hose by Republic*

Refueling an aircraft carrier at sea is a punishing job for hose. Oil Suction and Discharge Hose was designed by

Republic for mechanical strength, pressure resistance, and flexibility. These Republic engineering features, so essential to the Navy's fueling technique, assure American industry of the same dependable service in peacetime oil handling. Consult your nearby Republic Distributor on your own requirements.



WE ARE
PARTICIPANTS IN THE
OWNERSHIP AND OPERATION
OF
NATIONAL SYNTHETIC RUBBER
CORPORATION

REPUBLIC RUBBER

DIVISION

LEE RUBBER & TIRE CORPORATION

YOUNGSTOWN 1, OHIO

REPUBLIC INDUSTRIAL PRODUCTS
YOUNGSTOWN, O.



LEE DELUXE TIRES AND TUBES
CONSHOHOCKEN, PA.

A New kind of

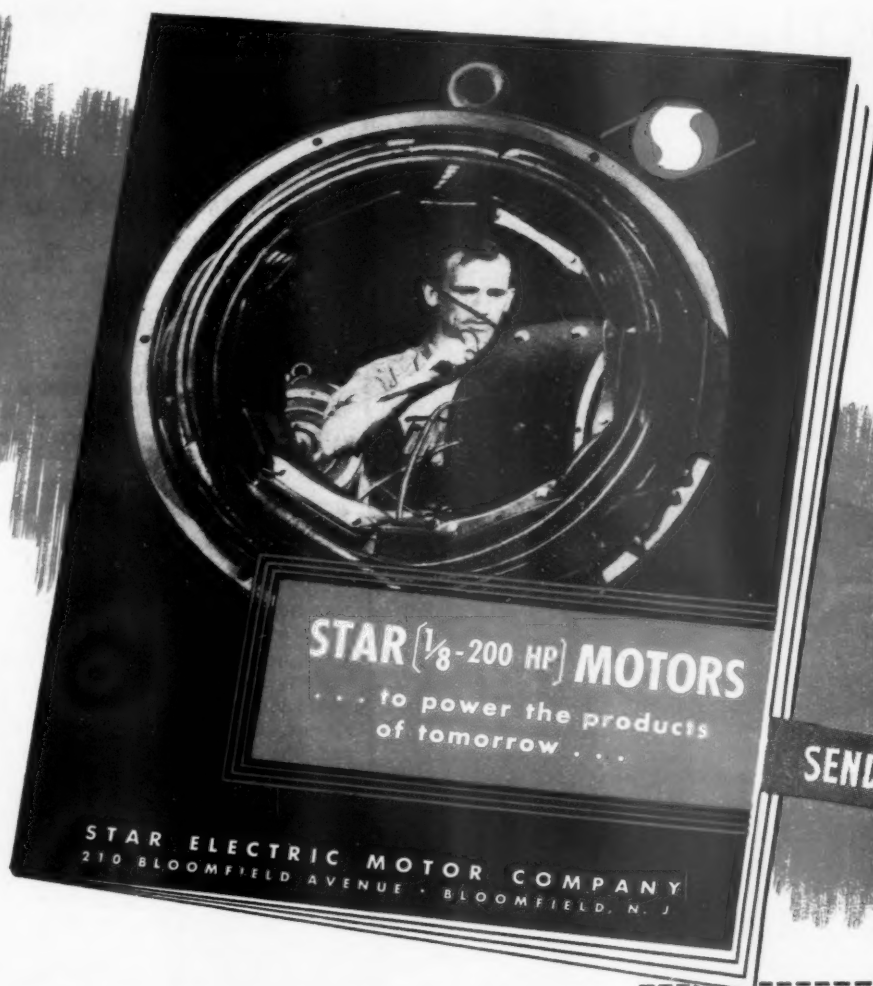
DIGEST FOR MOTOR BUYERS

IT'S DIFFERENT because it doesn't attempt to give you a lot of general technical data about motors and motor selection.

This eight-page file-size folder assumes that you know what type of motor you need. It was designed to tell you, quickly, about STAR as a source of motors and generators. It shows what sizes and types are built by Star. It describes Star's way of working with customers . . . how Star becomes their "Motor Department". It gives facts about Star's

pioneer achievements in motor design. It names many hard-to-satisfy motor buyers who are long-time customers.

To bring your file on leading motor sources up-to-date . . . to learn why so many prominent concerns are turning to Star Motors to power their products and production . . . attach the coupon below to your letterhead. It will also register you to receive the Complete Catalog which is in preparation.



SEND FOR YOUR COPY

STAR MOTORS

POWER PACKAGED AS YOU NEED IT



STAR ELECTRIC MOTOR CO.,
221 Bloomfield Avenue
Bloomfield, N. J.


☐ Send 8-page
bulletin about
Star Motors

☐ Put me on list to
receive Complete
Catalog

Name and position.....

Company

Address.....



GIVE YOUR PRODUCT

Standout

IDENTIFICATION

The battle for the consumer's dollar now shaping up promises to be the hottest in history!

When you've given your product the best in design, engineering and quality, give it one thing more to set it apart from competition

—give it standout identification with a fine looking Ecoa name plate.

Ecoa name plates, etched or lithographed



on metal, in colors as desired, spotlight your product. Ecoa name plates look better—longer. They're worthy marks for worthy products.

Write now for quotations, without obligation. Our art department will help on design if you desire.

ETCHING COMPANY OF AMERICA

1520 Montana Street, Chicago 14, Illinois, Dept. C-11

Metal Name Plates, etched or lithographed • Plastic Name Plates, Dials and Panels, lithographed or screened • Etched Metal Scales, Clock Dials, Instrument Panels, Art Novelties, Advertising Specialties • Etched Metal Panels for elevators and architectural uses.

SUBSIDIARY OF DODGE MFG. CORPORATION, MISHAWAKA, INDIANA

(Continued from page 346)

dealer will accept such order.

Effective Oct. 1, 1945, the ODT will no longer issue certificates of transfer covering new commercial motor vehicles.

During October, 1945, dealers are prohibited from transferring new commercial motor vehicles except to holders of valid certificates of transfer. The ODT urged holders of such certificates to place firm orders with the dealers of their choice before Nov. 1, 1945.

During November, 1945, dealers are required to give preference in delivery of new commercial motor vehicles to holders of valid certificates of transfer who have placed a firm order with them on or before Oct. 31, 1945.

Dealers may, during November 1945, deliver vehicles to any person not a holder of a certificate of transfer, provided they have not made commitments to a holder of such a certificate who shall have placed a firm order with them prior to Nov. 1, 1945.

All certificates of transfer, which will not expire until a date subsequent to Nov. 30, 1945, shall cease to be of any force or effect on and after Dec. 1, 1945.

♦ ♦ ♦

ARMY SET TO TACKLE HUGE TERMINATION LOAD

A month after the end of hostilities, the War Department has 76,929 terminated contracts to settle. These contracts, represent a commitment value of 24 billion dollars.

Many individual problems face contractors in settling terminated war contracts, but every problem has a solution. Army and Navy contract settlement personnel are ready and willing to give all possible aid to war contractors in the settlement of their claims promptly.

Financial Aid Available

Any war contractor, prime or sub, who needs money quickly can get it. The funds are available. Partial payments up to 90 per cent of estimated costs allocable to the terminated contract, and government guaranteed loans can be arranged. The Navy Material Inspector and the Army contracting officer can provide the details.

Subs Come First

Primes cannot obtain final settlement of war contracts until their subs have filed claims and disposed of their inventories. Fast settlement depends, as successful production depended, on the smooth functioning of the contractual chain. War contractors remember how expeditors in the plants of their subcontractors speeded production. If they initiate the same sort of intensive efforts to expedite the filing of claims, they cannot fail to get results.

Contractors can speed settlement by making full use of the blanket authority to settle claims under \$1,000 without reference to the government. Numerous contractors have been delegated the authority to settle subs' claims under \$10,-

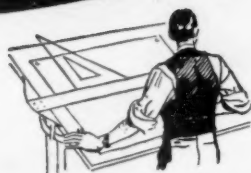
(Continued on page 352)

What's on your drawing boards for tomorrow?

BUSES or BABY CARRIAGES

STEAM TURBINES or ELECTRIC FANS

VACUUM TOWERS or VACUUM CLEANERS



-remember... 9 TIMES OUT OF 10
STEEL WILL DO IT BETTER

WITH most of the advantages of steel, product designers are well familiar. But it should be kept in mind that steel's potentialities for the future have, during these war years, been greatly enhanced.

New, finer steels have been developed. Steel producing and processing techniques have been improved. Faster and more efficient methods of applying steel have been discovered. New uses for steel—either alone or in combination with other materials—have been turned up and proved practicable.

To help you in taking full advantage of the many desirable properties that steel can contribute to your postwar product—that will make it more durable, more efficient, less costly to manufacture and easier to sell—the nation's largest organization of specialists in steel is ready to assist you.

CARNEGIE-ILLINOIS STEEL CORPORATION

Pittsburgh and Chicago

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

For turning dead weight into dollars economically.

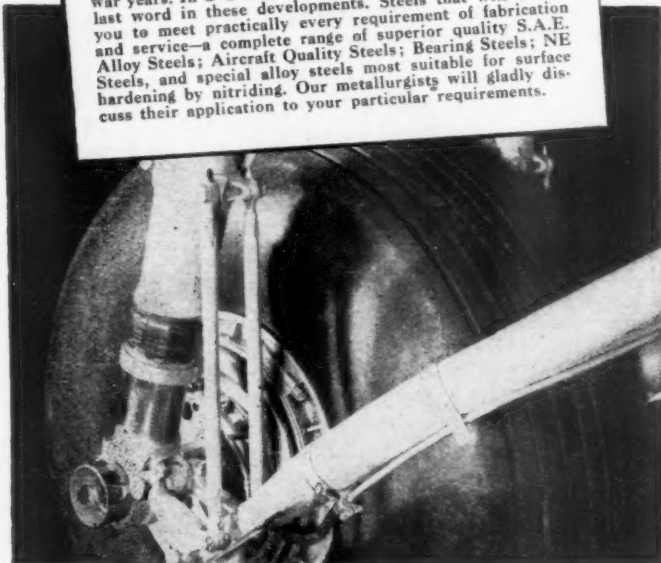
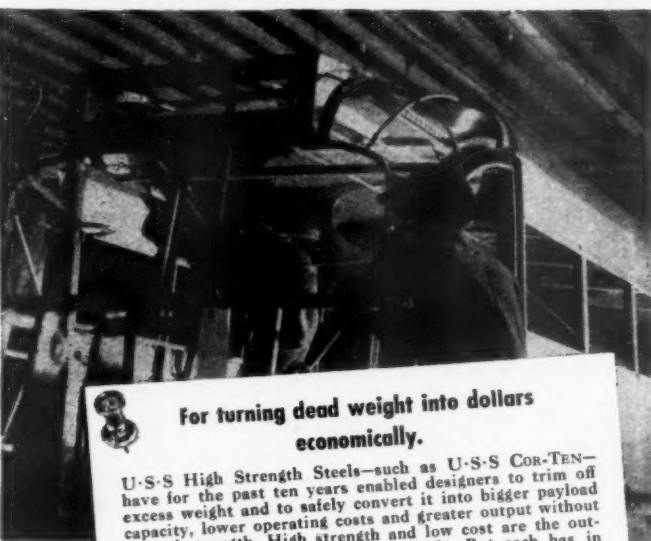
U-S-S High Strength Steels—such as U-S-S COR-TEN—have for the past ten years enabled designers to trim off excess weight and to safely convert it into bigger payload capacity, lower operating costs and greater output without loss of strength. High strength and low cost are the outstanding characteristics of these steels. But each has in varying degree other desirable properties—increased resistance to corrosion, to wear, impact shock, vibration or fatigue, easy fabrication—so that the designer can obtain whatever particular combination of properties he finds most necessary for top efficiency.

When special made-to-measure steels are needed.

What amounts to a revolution in the manufacture of steels for severe and unusual service has taken place during these war years. In U-S-S Carilloy Alloy Steels you will find the last word in these developments. Steels that will enable you to meet practically every requirement of fabrication and service—a complete range of superior quality S.A.E. Alloy Steels; Aircraft Quality Steels; Bearing Steels; NE Steels; and special alloy steels most suitable for surface hardening by nitriding. Our metallurgists will gladly discuss their application to your particular requirements.

Here's low cost resistance to corrosion.

Although it costs only about 5% more than plain steel, U-S-S Copper Steel has double the resistance to atmospheric corrosion. By taking advantage of this fact you can economically design longer life into railroad cars, metal cabinets, centrifuges, refrigerating, ventilating and air conditioning equipment, tanks and ductwork. It fabricates as easily as plain steel. Can we tell you more about it? Whenever greater resistance to atmosphere corrosion is desired, at reasonable cost, specify U-S-S COR-TEN. This high strength steel is 4 to 6 times more resistant to atmospheric corrosion than plain steel.



UNITED STATES STEEL

CLARK

QUALITY STEP BOLTS

with large black heads
and American Standard
Regular Square Nuts.

Diameter from

$\frac{3}{16}$ " to $\frac{1}{2}$ "



Securely and conveniently
packed
for convenient handling.
We manufacture a complete
line of Quality Bolts—
Nuts—Screws—Rivets.

Send us your inquiries.

CLARK BROS BOLT CO
MILWAUKEE WIS. CHICAGO ILL.

(Continued from page 350)

000. Contractors are urged to make full use of these delegations.

Submit Inventory

It is to the interests of the contractor to dispose of as much of his inventory as possible. That part which is not disposed of will be removed by the government within 60 days after a satisfactory inventory schedule has been received. It is not necessary to delay filing of inventory schedules until an entire inventory is prepared.

The Army and Navy, through the Termination Coordination Committee continue to offer half-day courses in settlement procedures. The basic work course is offered to contractor personnel with little background in termination work. An accounting course is available for accountants having termination experience. Contractors may obtain information on these courses from their local Termination Coordination Committee.

Regulations and Forms

Contractors should make every possible use of the Readjustment Distribution Center, 90 Church Street, New York 7, New York. From this Center all available printed information on contract settlement can be obtained. It is imperative that contractors maintain an up-to-date set of the Joint Termination Regulation together with other timely literature.

In cases where it is inconvenient or not possible to obtain settlement proposal forms from contracting officers, contractors may obtain the following forms from the Distribution Center:

Office of Contract Settlement Forms 1, 1a, 1b, 2a, 2b, 2c, 2d, 3, 4, and Instruction Sheets.

A postcard will do the trick.

1 1 1

LUMBER MAY BE ORDERED WITHOUT RESTRICTION

With the removal of wartime controls on the distribution of lumber on September 30, no allotments will be made in the fourth quarter and lumber users are now free to order and receive lumber restriction, except for existing inventory controls, the War Production Board announced.

Applications for fourth quarter allotments (filed on WPB Form—3640) have been returned to industrial consumers without action. Instead, these consumers are required to file a quarterly report of their lumber inventories, consumption and requirements (Form WPB—4349) not later than October 15, WPB said.

Pointing out that preference ratings are still being issued for military orders and certain essential civilian programs, WPB said that these reports will enable it to appraise the general lumber situation as a basis for determining whether procurement assistance is needed and what form it should take. Information obtained from the reports will be used to expedite prompt delivery of lumber for essential civilian activities.

(Continued on page 354)



**Prompt
deliveries**



both types!

WIREGRIP Belt Hooks that can be applied with any make lacing machines, have double (patented) aligning cards that hold hooks in perfect alignment, prevent handling and card-end loss — every hook saleable and usable. Made in 6 sizes.

STEELGRIP Belt Lacing is applied with a hammer. Comes in 11 sizes, in standard boxes, handy packages or long lengths for wide conveyor belts. Have 2-piece hinged rocker pins.

Write for Catalog

ARMSTRONG-BRAY & CO.

"The Belt Lacing People"

5378 Northwest Highway, Chicago 30, U.S.A.

No. 205P

**When the
helmet's
UP
the shield's
DOWN**



**CONTINUOUS
PROTECTION**

**TO CUT THOSE
29,700,000 LOST MAN DAYS***
Lost because of injuries to head and eyes in 1943. Supply workers with equipment they will wear—designed for comfort and protection. Investigate Sellstrom safeguards now. At your jobber or write.

*Statistics from OWI and Nat'l Safety Council.



Sellstrom
MANUFACTURING CO.

634-11 N. ABERDEEN ST. • CHICAGO 22, ILL.

Staples STANDARD SOLID REAMERS

NEW!

EXCLUSIVE!

Now...

**CARBOLOY FULL LENGTH
OF THE FLUTES**

● It's the greatly increased Carboloy surface, extending full length of the flutes, that makes the difference . . . in the new and exclusive Staples Standard Solid Reamer.

This noteworthy advance means reduced wear—for the entire I. D. is contacted only by Carboloy. Wear strips are unnecessary—for the all-over guide is diamond lapped Carboloy, copper brazed to the alloy steel body. The number of sharpenings per tool is increased.

Scoring or galling, caused by worn flutes, is avoided. The importance of full length Carboloy will be especially seen in reaming cast iron, or any other highly abrasive material.

Lasting precision the full length of the flute is provided by this new Staples Standard Solid Reamer . . . at a price only 15% above conventional solid reamers. Available in diameters $\frac{5}{16}$ " to $1\frac{1}{2}$ ". Send for full information on this new Staples Reamer, and catalog of the Staples complete line of Carboloy-tipped circular cutting tools.

STAPLES TOOL & ENGINEERING COMPANY

CINCINNATI 25, OHIO

Staples CARBOLOY-TIPPED CIRCULAR CUTTING TOOLS

REAMERS • CORE DRILLS • SPOT FACERS • COUNTERBORES • END MILLS •
SHELL END MILLS • ALSO A COMPLETE LINE OF CIRCULAR SPECIAL TOOLS

AUTHORIZED DISTRIBUTORS

Albany, Sager-Spuck
Baltimore, L. A. Benson
Birmingham, Quinn & Quinn
Boston, Arthur A. Crafts
Brooklyn, A. N. Nelson
Buffalo, R. C. Neal Company, Inc.
Charleston, Cameron & Barkley
(Branches, Jacksonville, Miami, Tampa)

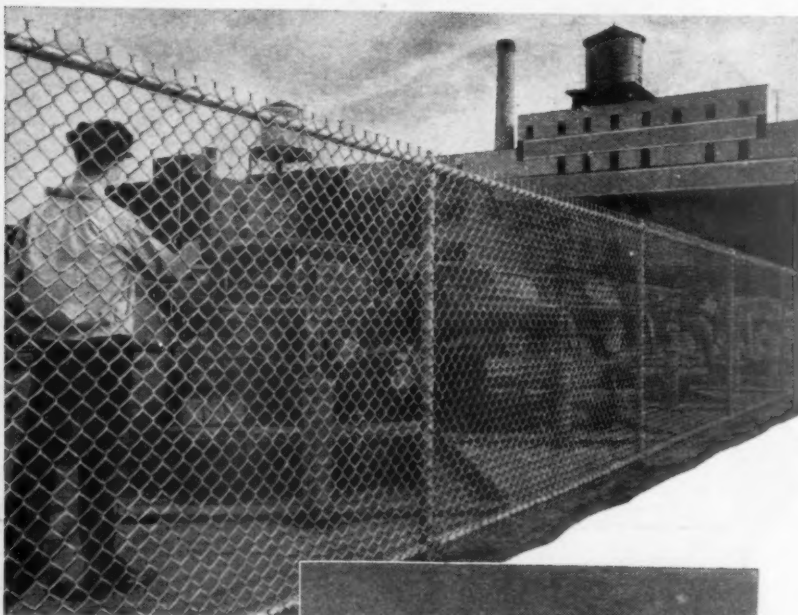
Chicago Screw Machine Supply
Cincinnati, E. A. Kinsey
Cleveland, Strong, Carlisle & Hammond
Dallas, Machinery Sales & Supply
Denver, Mine & Smelter Supply
Detroit, Sterling Supply
El Paso, El Paso Saw & Belting Supply
Erie, Neal & Co.

Houston, G. F. Cotter Supply
Knoxville, W. S. Murrian
Los Angeles, Machinists' Tool & Supply
Memphis, J. E. Dilworth
Minneapolis, John C. Eide
Muskegon, Muskegon Hdwe. & Supply
Newark, General Carbides
New Orleans, Murray-Baker-Frederic

Norfolk, Empire Machinery & Supply
Omaha, Fuchs Machinery & Supply
Syracuse, Syracuse Supply
Toledo, Mill & Factory Supply
Tulsa, Marshall Supply & Equipment
Waterbury, White Supply
Winston-Salem, Atlas Supply Company

PAGE FENCE *-Since 1883*

• AMERICA'S FIRST WIRE FENCE •



*You
Can
Order
Your Fence Now*

• Because of the importance of property protection, war restrictions on chain link fence are among the first to be lifted. Many will want the fence that was denied them, as they have wanted other things long scarce or unobtainable except on highest priorities. It will take months to catch up with demand. Therefore, it is advisable to place your order NOW for long-lasting Page Fence. The Page Fence Association member nearest you will submit cost estimates and book your order. If you do not know his name, write or wire to the Association office in Atlanta, Bridgeport, Chicago, Denver, Los Angeles, Philadelphia, Pittsburgh, New York, San Francisco, or Monessen, Penn.

PRODUCT OF PAGE STEEL & WIRE DIVISION—AMERICAN CHAIN & CABLE, BRIDGEPORT, CONN.

(Continued from page 352)

In a letter to industrial consumers transmitting Form-4349, WPB said:

"Since V-J Day, the lumber supply situation has changed from definite shortage to uncertainty. Reconversion and readjustment can proceed smoothly only if WPB has all possible knowledge of the present supply and demand situation. It is, accordingly, very important that you submit a carefully prepared report which expresses as accurately as possible your individual plans and lumber needs. In estimating the quantities of lumber required, you should be governed by your actual anticipated production program."

In general, lumber users required to file the report are those who were Class I consumers under the Lumber Order, L-335, now revoked.

KRUG ISSUES REPORT ON RECONVERSION PROGRESS

With the road back to full civilian production, appreciably smoothed by months of hard preliminary work by WPB and other government procurement agencies, industry is now ready to meet the long pent-up demand for civilian goods by doubling its production records of 1939, Chairman J. A. Krug said in presenting his second report on the "Progress of Reconversion."

Actual August 1945 civilian production of these selected and product industries was up to 51 per cent of the average month base period of 1939; September production is estimated to be 60 per cent; the forecast for December 1945 is for 153 per cent; and for June 1946 it is expected to be 238 per cent of the 1939 base figure.

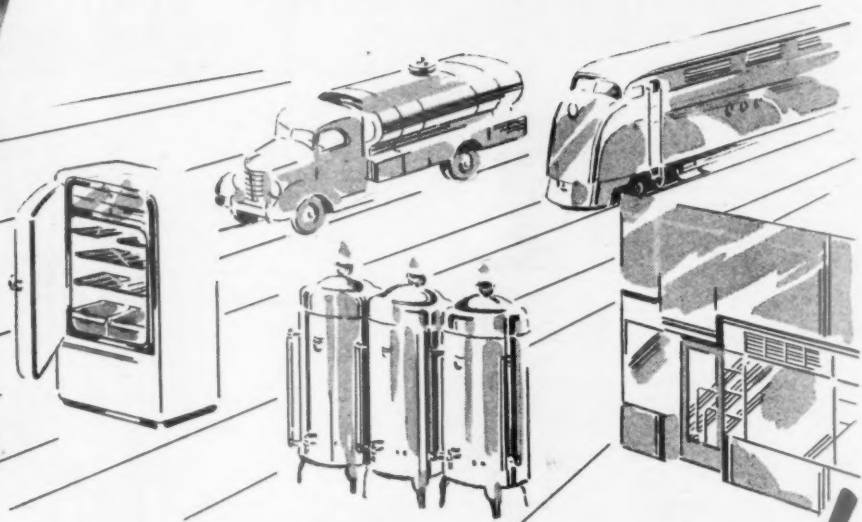
In making his report public, Chairman Krug emphasized that the figures he gave, represented what industry felt it should be able to do between now and the end of the first half of 1946. He pointed out that their optimistic forecasts must be studied in the light of many possible complications such as are involved in the present wage and price problems which might retard the accomplishments of the production levels indicated. The report, he said, should be viewed as an indication of what industry expects to do assuming the wage and price problems are promptly solved.

Mr. Krug said WPB's second "Progress of Reconversion" report should not be compared to the first issued about a month ago, inasmuch as the most recent report covers a much broader field, 59 industries instead of the 42 treated in the earlier survey, and the percentage increase is on a different base.

The second "Progress of Reconversion" report, which includes a brief summary, is divided into two tables, Table I presents the anticipated civilian production picture (in units) by 1,222 companies which comprise a satisfactory cross section of the 59 industries covered. Table II presents this anticipated production in dollar volume at factory sale prices, and, based upon the company reports in Table I are projected to include all units of each of the 59 industries.



Turning to "stainless"?



...Here's Where to Turn!

FRASSE stainless inventories include:—

BARS

Type 302 Rounds	1/8" to 4"
Type 303 Rounds	1/16" to 6"
Type 416 Rounds	3/32" to 4"
Type 303 Hexagons	5/32" to 2"
Type 416 Hexagons	1/4" to 2"
Type 302 Square	1/4" to 2"
Type 303 Square	1/8" to 3/16"
Type 302 Flats	1/8" x 3/8" to 1" x 4"

SHEETS AND PLATES

Type 302	.019" (26 ga.) to .250" (1/4")
Type 304	24" x 96" to 48" x 120"

STRIP

Type 302	.010" to .062"
	12" to 24" x 120"

Also in spring temper

ANGLES

Type 304	1/8" to 3/16" x 1" to 2"
	(equal leg)

TUBING

Type 304 Seamless	1/8" to 5" OD
	x 20 ga. to 1/4" wall
Type 304 Welded	3/8" to 1 1/2" OD
	x 18 ga. to 16 ga. wall
Type 347 Welded	3/8" to 3 1/2" OD
	x 20 ga. to 16 ga. wall

PIPE

Type 304 Seamless	1/8" SPS to 6" SPS
	1/8" EHPS to 4" EHPS
Type 304 Welded	1/8" SPS to 2" SPS
Type 316 Seamless	1/2" SPS to 2" SPS
Type 316 Welded	1/2" SPS to 2" SPS
Type 347 Seamless	1/2" SPS to 3" SPS
Type 347 Welded	1/2" SPS to 2" SPS

FITTINGS

Ells, Tees, Couplings, Plugs, Unions, Lock-nuts, Bushings, Nipples.

Improving your product with stainless steel? While you're eyeing stainless, don't overlook Frasse stainless service.

Frassé stainless steels are *immediately* available. Here are sheets, bars, strip, pipe, tubing . . . warehouse-handly for instant use. Frasse inventories offer plenty of choice—comprehensive, well rounded stocks to choose from, in a wide variety of types and sizes to fit your specs. And to fill out your stainless picture—competent Frasse engineering counsel is freely available for production pow-wows.

Stainless steel is a major Frasse warehouse service. Frasse *knows* stainless . . . and you can depend on Frasse experience and inventories for real help. Call on us. Peter A. Frasse and Co., Inc., 17 Grand Street, New York 13, N. Y. (Walker 5-2200) • 3911 Wissabickon Ave., Philadelphia 29, Pa. (Radcliff 7100—Park 5541 • 50 Exchange Street, Buffalo 3, N. Y. (Washington 2000) • Jersey City • Hartford • Rochester • Syracuse • Baltimore.

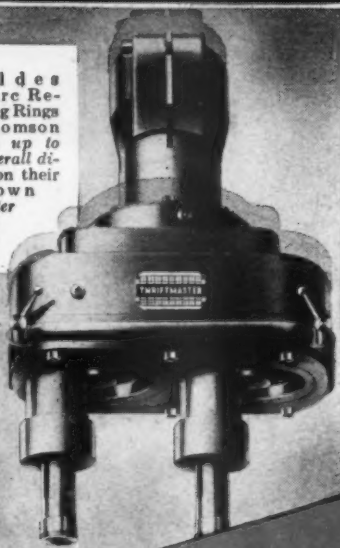
FRASSE

MECHANICAL AND AIRCRAFT STEELS

CARBON, ALLOY AND STAINLESS STEEL BARS, TUBES, SHEETS, STRIP AND WIRE

Another Proof that Waldes Truarc Retaining Rings hold moving parts together better!

1 Waldes Truarc Retaining Rings saved Thomson Industries up to 10% in overall dimensions on their well-known Thriftmaster multiple spindle drillheads.

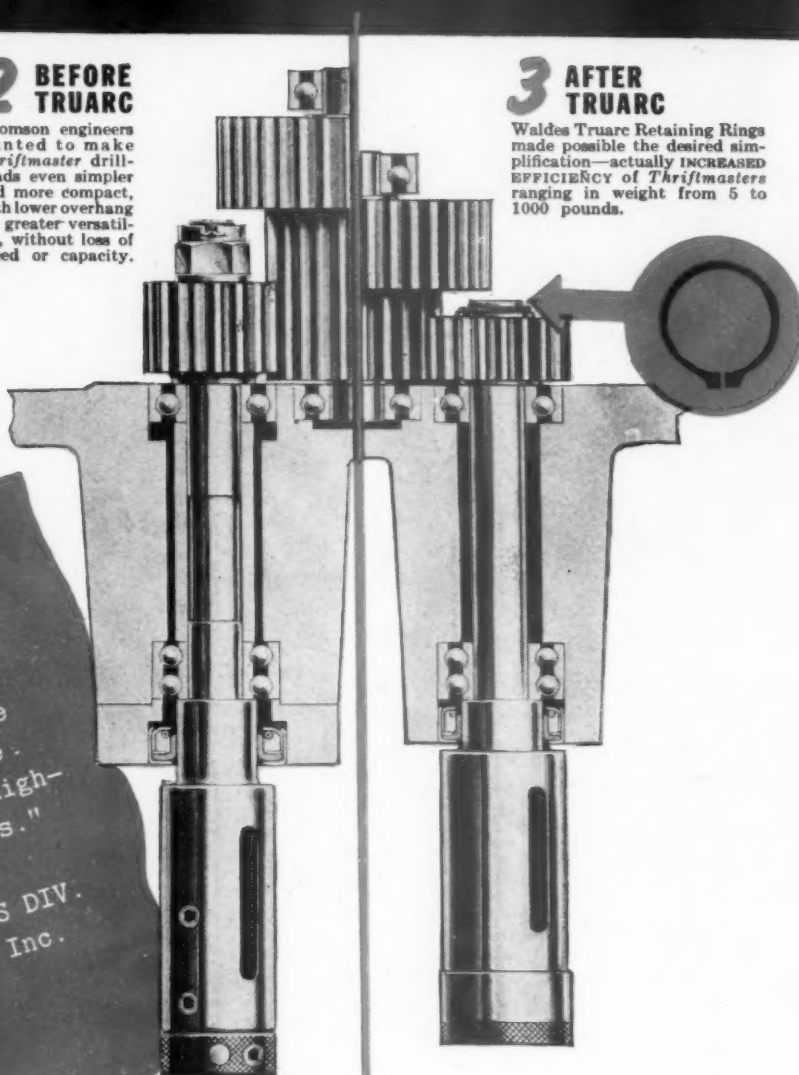


2 BEFORE TRUARC

Thomson engineers wanted to make Thriftmaster drillheads even simpler and more compact, with lower overhang for greater versatility, without loss of speed or capacity.

3 AFTER TRUARC

Waldes Truarc Retaining Rings made possible the desired simplification—actually INCREASED EFFICIENCY of Thriftmasters ranging in weight from 5 to 1000 pounds.



"Waldes Truarc Retaining Rings enabled us to make substantial time and labor savings in production of THRIFTMASTER drillheads...and made possible a much lighter, handier, more rugged tool, exceeding our highest performance requirements."

(Signed)
THRIFTMASTER PRODUCTS DIV.
Thomson Industries, Inc.

IN HOLDING and positioning machine parts, Waldes Truarc Retaining Rings offer distinct advantages over nuts, shoulders, collars and pins. They save cost by simplifying and speeding up production. They make assembly and disassembly much quicker, easier. They can be put on and taken off time and time again—and still retain the perfectly true circularity that gives them their never-failing grip. Test Waldes Truarc Retaining rings in your products and in the machines that make them. We'll furnish samples and complete data. Write Dept. W-11.

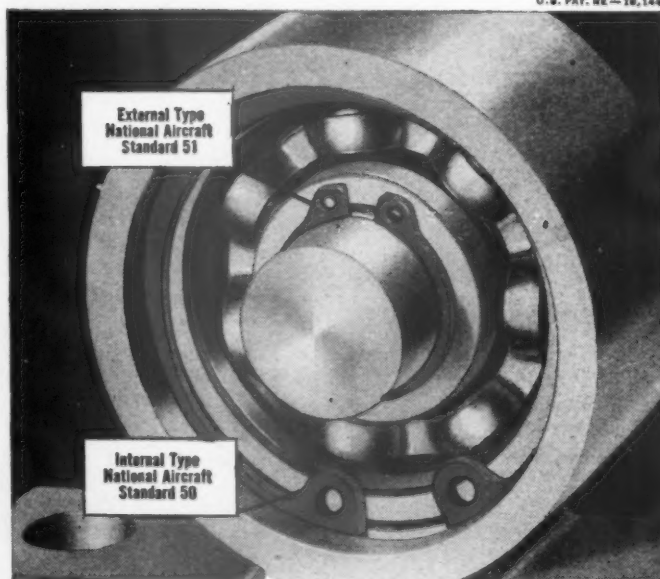
WALDES
TRUARC
TRADE MARK
RETAINING RING

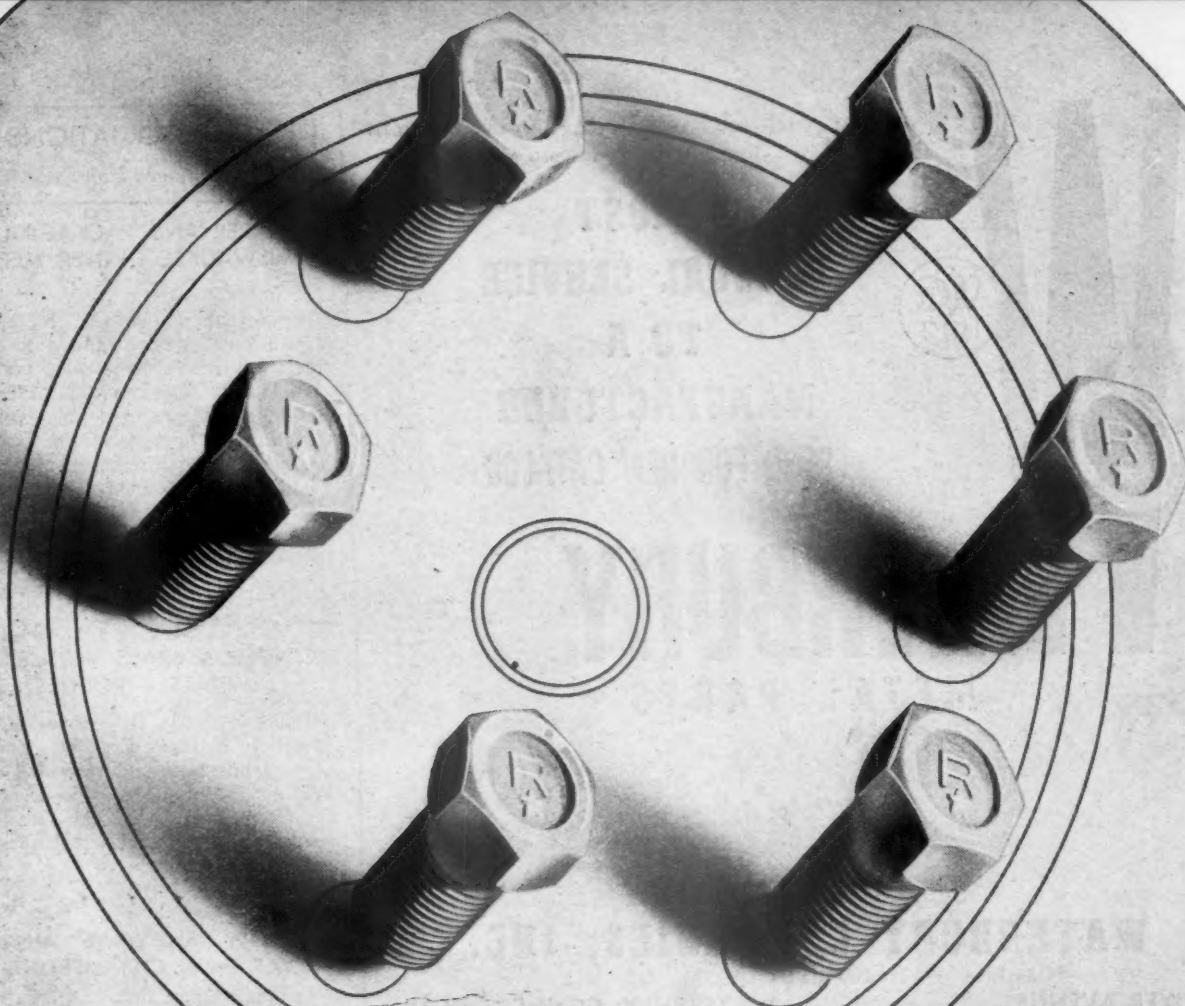
WALDES KOHINOOR, INC., LONG ISLAND CITY 1, NEW YORK

CANADIAN REPRESENTATIVES: PRENCO PROGRESS CORP., LTD., 72-74 STAFFORD STREET, TORONTO



U.S. PAT. NO. 2,146,146





when the auto industry starts rolling

Buffalo Bolt Company is ready for the automotive industry when it shifts into high gear—ready to supply its every need with standard or specially built circle ® fasteners as we have been doing since the beginning of the "horseless carriage" days.



BUFFALO BOLT COMPANY



NORTH TONAWANDA, NEW YORK
SALES OFFICES IN PRINCIPAL CITIES



One of the modern Buffalo Bolt machines
—capacity 4200 pieces per hour.

W



Let us tell you how you may use our organization just as if it were yours

**A MOST
UNUSUAL SERVICE
TO A
MANUFACTURER
SEND FOR NEW CATALOG**

WATERBURY
METAL PARTS

*Eyelets
Ferrules
Terminals*

WATERBURY COMPANIES, INC.

FORMERLY WATERBURY BUTTON CO., EST. 1812

BUYER AVENUE,

WATERBURY, CONNECTICUT

**Fast
Tough**



**Complete Range of
Metal Sawing Machines**

Being the largest exclusive manufacturer of metal sawing machines and blades, both hack saw and band saw type, we have the correct answer to your cut-off problems. Each MARVEL model has a distinct application, so write us and we will send our catalog, price, and recommendation for the saw to fill your requirements most efficiently. MARVEL sawing engineers are also available to discuss and analyze your cut-off work. (Without obligation of course)

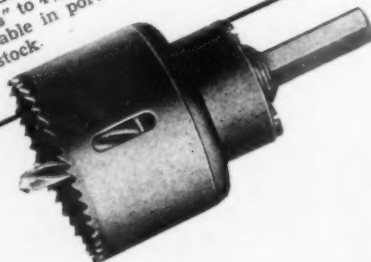
ARMSTRONG-BLUM MFG. CO.

5700 W. Bloomingdale Ave., Chicago 39, Illinois, U. S. A.

Heavy feed at high speed spells doom to the ordinary hack saw blade; down-time for your machine, extra expense in money, man hours, and production. The MARVEL Hack Saw Blade, because it is positively unbreakable under these conditions, should be "a must" tool in every efficiently operated shop. A tough alloy steel back is electrically welded to high speed steel teeth, producing unlimited tension; can withstand almost heavy feeds and the heat and abrasion of high speed heavy duty sawing.

The same exclusive unbreakable feature of MARVEL Hack Saw Blades is also a feature of MARVEL Hole Saws, giving these saws the ability to stand up under abuse. MARVEL Hole Saws cut holes from $\frac{3}{8}$ " to $4\frac{1}{2}$ " diameter in stock up to $1\frac{1}{8}$ " thick. Usable in portable drill, drill press, or lathe tail stock.

*Heavy feed
at
high speed*



ASSOCIATIONS

(Continued from page 238)

**PAPER AND PACKAGING AT
MILWAUKEE DINNER MEETING**

Kimberly Stewart, vice president of the Neenah Paper Co., Neenah, Wis., spoke on "Writing and Fine Papers," and Randall A. Ross, vice president of Hummel & Downing Co., Milwaukee, spoke on "Corrugated and Fibre Packaging for Tomorrow" at the dinner meeting of the Purchasing Agents Association of Milwaukee October 9th at the Milwaukee Elks Club. At the preceding commodity meeting there was an interesting discussion of "Non-Ferrous Metals."

1 1 1

**COPPER & BRASS VERSUS WHITE
METALS — ROCHESTER**

"Copper and Brass versus White Metals in Postwar Era" was the subject of very interesting address by Dr. R. A. Wilkins of the Revere Copper & Brass Co., Rome, N. Y., at the October 24th meeting of the Rochester Association of Purchasing Agents.

1 1 1

**SHOW "SHIPWAYS" MOVIE
AT TWIN CITY MEETING**

Showing of the entertaining moving picture "Shipways" through the courtesy of the Bethlehem Steel Company featured the October 10th meeting of the Twin City Association of Purchasing Agents at the St. Paul Athletic Club, St. Paul, Minn. The film presents actual scenes of launching ceremonies and departures of completed warships, and the commissioning of varied other types of warcraft.

1 1 1

**ORGANIZE SOUTH BAY GROUP
OF P. A. A. OF N. C.**

The South Bay group of the Purchasing Agents Association of Northern California was recently organized at San Jose, Calif. This group will hold regular meetings on the last Friday of each month. Guy Mimms, purchasing agent for Schuckl & Co., Sunnyvale, Calif., was elected temporary chairman.

1 1 1

**POSTWAR PROJECTS FOR FREE
ENTERPRISE — INDIANAPOLIS**

Dr. M. O. Ross, president of Butler University spoke on "Postwar Projects for Free Enterprise" at the first fall meeting of the Purchasing Agents Association of Indianapolis held at the Columbia Club September 25th. New officers taking over the reins at the meeting were President A. N. Phillips, purchasing agent, Schwitzer-Cummins Company; vice president C. C. Harmening, Shell Oil Company; Secretary E. W. Allen, Diamond Chain Manufacturing Company; and, Treasurer J. F. Brennan, Hugh J. Baker Company.

(Continued on page 360)



When Seconds Count—

C-O-TWO KILLS FIRE IN SPLIT SECONDS

Action taken in the first few seconds may decide whether you face a disaster or merely a quickly passed-over episode, when fire hits your plant. Of course, modern equipment must be instantly available and ready for instant use . . . equipment with which anyone can kill fire in its tracks. And that's just what C-O-TWO does to fire. It's down to a split-second timing. "Squeeze and it's out". The famous SQUEEZ-GRIP valve makes it possible to release the fire-killing carbon dioxide with no more effort than closing your hand, even while the extinguisher is being carried. No wheels to turn, no preliminary adjustments, just squeeze the release lever and a fire-smothering blanket of sub-zero gas stops the blaze on the spot, and without damage to equipment or materials.

For particularly vulnerable locations C-O-TWO offers you specially engineered equipment. Whether electrical fires, fires in highly volatile oils, paints, lacquers, chemicals or ordinary fires, C-O-TWO has the quick answer, "IT'S OUT!" Hand portables with the original SQUEEZ-GRIP valve, hose reel units, wheeled units, permanently installed systems of the pressure operated type, smoke detecting systems; all will control fire faster with dry non-damaging, non-conducting, non-deteriorating sub-zero blasts of carbon dioxide gas. C-O-TWO is modern fire protection. Write for information.

**C-O-TWO Kills Fire — Saves
Lives — It's Faster — Safer.**



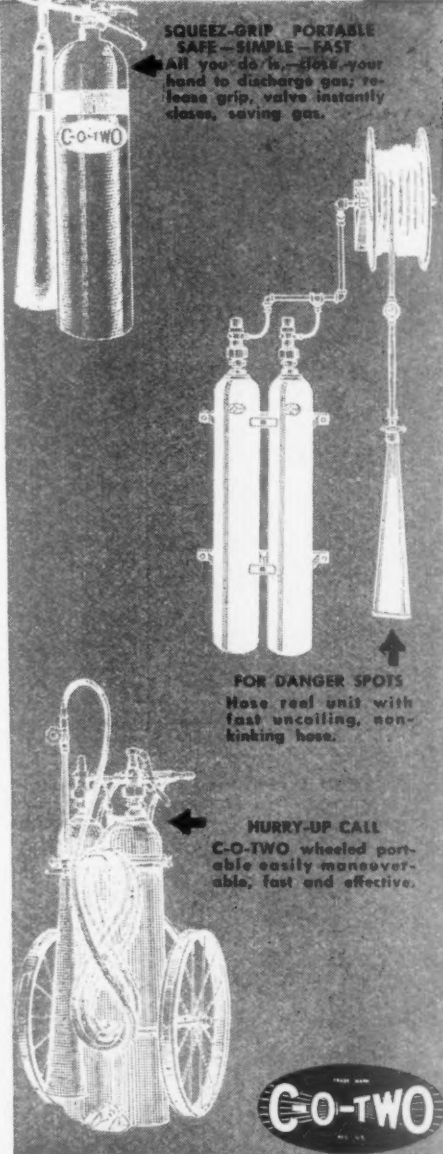
C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1

NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY



C-O-TWO



IN SPEEDING UP the fitting of machine parts by eliminating the precision machining otherwise required, Laminum shims actually add to the certainty of uniform accuracy... you simply peel laminations of known precision gauge from the solid shim. Bulletin on request.

Laminum shims are cut to your specifications. For maintenance work, however, shim materials are sold through industrial distributors.

Laminated Shim Company, Incorporated
90 Union Street Glenbrook, Conn.

LAMINUM
THE SOLID SHIM THAT *peels* FOR ADJUSTMENT

DISCUSS PLASTICS AT WESTERN MASSACHUSETTS MEETING

Members of the Purchasing Agents Association of Western Massachusetts were guests of the Prophylactic Brush Company, Springfield, Mass., at a plant inspection and dinner on October 11th. Following the plant inspection, the regular business meeting was held at the Hotel Northampton where G. F. D'Alelio, vice president and director of research for the Prophylactic company spoke on "Plastics."

1 1 1

INDUSTRIAL DEVELOPMENT BIRMINGHAM

J. Frank Rushton, spoke on "The Aims, Purposes and Work of the Birmingham Industrial Corporation" at the September 26th meeting of the Purchasing Agents of Alabama, at the Redmont Hotel, Birmingham. The meeting was well attended and Mr. Rushton's talk proved of unusual interest and enlightenment.

1 1 1

PRIORITY AND CONTROL CHANGES TRI-CITY ASSOCIATION

New War Labor Board priority and control changes were explained to members of the Tri-City Association of Purchasing Agents by A. E. Lineberry, branch manager of the WPB, and John Payton, chief of the Priority Division, at meeting held in the Hotel Blackhawk, Davenport, Iowa, September 11th.

1 1 1

PUBLIC RELATIONS IN 1946 PORTLAND MEETING

Ben. H. Hazen, president of the Benjamin Franklin Federal Savings & Loan Association, was the principal speaker at the monthly meeting of the Purchasing Agents Association of Oregon, at the Heathman Hotel Portland, September 25th. His subject was "Public Relations 1946." At the September 25th luncheon, two moving pictures were shown, namely, "Flame Priming Drum Gates on Coulee Dam", and "Unionmelt Welding Stainless Steel Tanks." The pictures were presented by Ray Cahan of Linde Air Products.

1 1 1

OKLA. CITY & TULSA ASSNS. ENJOY JOINT PLANT VISIT

Members of the Purchasing Agents Association of Oklahoma City, and the Tulsa, Okla. association, were guests of Black, Sivalls & Bryson, Inc., at a joint meeting in Oklahoma City, September 14th, where they had the pleasure of visiting the firm's large metallurgical laboratories, and shops where they witnessed the use of automatic welders on tank work. Following the plant tour the purchasing agents reassembled at the Oklahoma Biltmore Hotel where following a social hour, they enjoyed a sumptuous dinner and a full evening of genuine good fellowship and entertainment.

(Continued on page 364)

He was always **"4-FOOTED FRED"**



...always down on all fours, trying to find those slithery slotted screws that skid off the driver and roll out of sight. Fred lost hours this way—as well as scores of screws—

...until **AMERICAN PHILLIPS SCREWS** put him back on his feet—and kept him there

Every time Fred fits an American Phillips Screw on the 4-winged bit of his power driver—he's a sure shot to make a swift, straight, secure fastening. For these recessed-head screws *stay aligned* with the driver till the heads are turned up flush. There's no open-end slot to let the driver skid out... instead, a 4-winged recess that encloses the driver completely, and holds it secure in a *tapered* grip.

So no time is lost in hunting for dropped screws... and none lost in slow starts, "drunken driving," or filing mangled

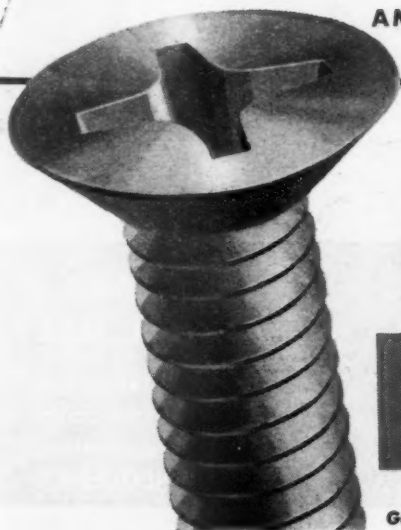
screwheads. For American Phillips Screws drive straight every time, and their heads can't burr or split. This means total time-savings up to 50%—*which means that American Phillips Screws COST LEAST on any assembly job.*

Make a note, now, to mark your orders: "American Phillips Screws." For then you get the extra value-protection of American's 4 inspections, and automatic weigh-count... plus prompt delivery from ample American warehouse stocks.

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Chicago 11: 589 E. Illinois Street

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PHILLIPS** *Screws*

Guaranteed Free from Burrs and Split Heads

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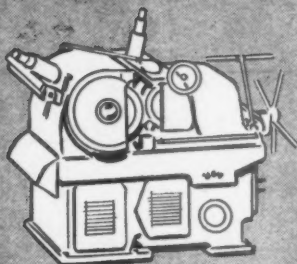
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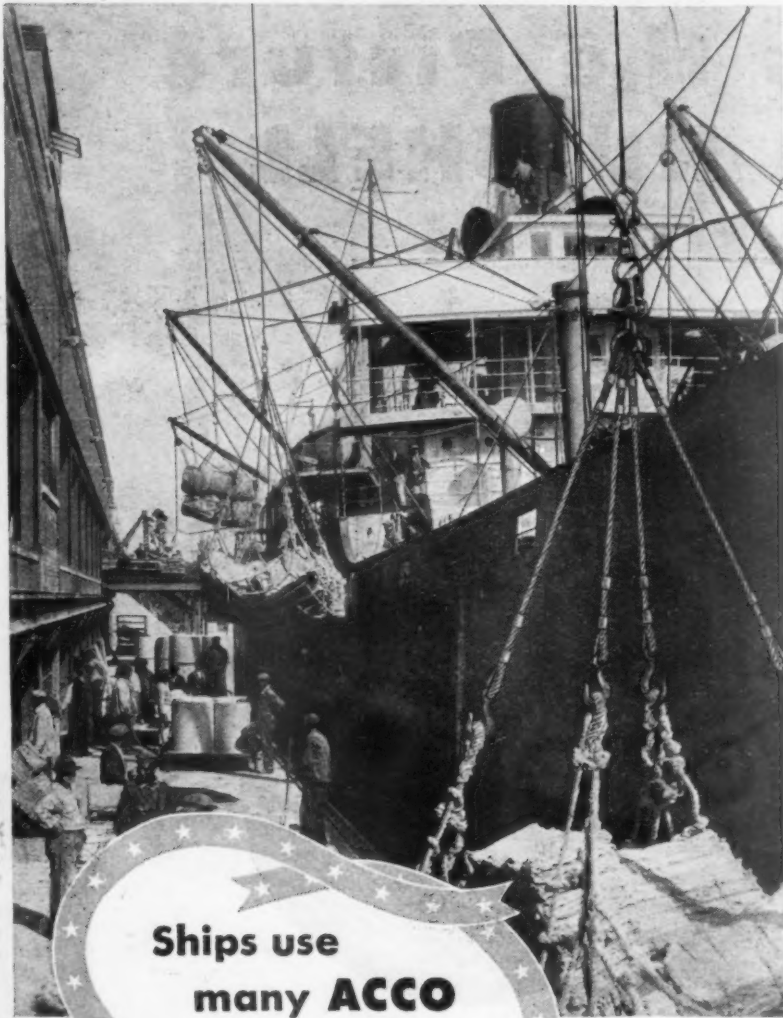
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Detroit Plant and Administrative Offices: Detroit 12,
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**Ships use
many ACCO
products**

YOU'LL FIND products made by various divisions of American Chain & Cable all over a ship, from the top deck down to the engine rooms.

You'll see rigging and cargo falls, for example, made of wire rope by American Cable and Hazard Wire Rope Divisions. You'll notice equipment like bell signals, berths, swinging ladders and cargo nets made of chain by American Chain Division. You'll find cargo holds and engine rooms equipped with Wright Hoists and Cranes which do many indispensable jobs of lifting. In the engine rooms you'll also see that the ship's power plant and pumps are controlled with valves made by Reading-Pratt & Cady Division.

These are only a few of the primary products made by the 15 divisions of ACCO: Chain • Wire Rope • Aircraft Cable • Fence • Welding Wire • Cutting Machines • Castings • Wire • Springs • Lawn Mowers • Bolts & Nuts • Hardness Testers • Hoists & Cranes • Valves

ACCO



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BRIDGEPORT
CONNECTICUT

ATOMIC BOMB SUBJECT AT TULSA MEETING

Members of the Purchasing Agents Association of Tulsa found October an active month so far as association activities were concerned. On the 9th they visited the plant of the Wheatley Pump & Valve company, and enjoyed a buffet supper at the plant. October 13th the Purchasing Agents-Salesmen golf tournament was held at Indian Hills Country Club, and on the 23rd, W. G. Green, president of Engineering Laboratories, Inc., gave an interesting talk on the atomic bomb, its development and potential uses of nuclear fission in industry.

DISCUSS ZINC INDUSTRY TEXAS PANHANDLE

R. A. Young, vice president of the American Zinc Company, was guest speaker at the September meeting of the Purchasing Agents Association of the Texas Panhandle at the Capitol Hotel, Amarillo, Tex. Mr. Young discussed the development of the zinc industry in the Southwest.

DISCUSS MAGNESIUM ALLOYS AT TRI-CITY MEETING

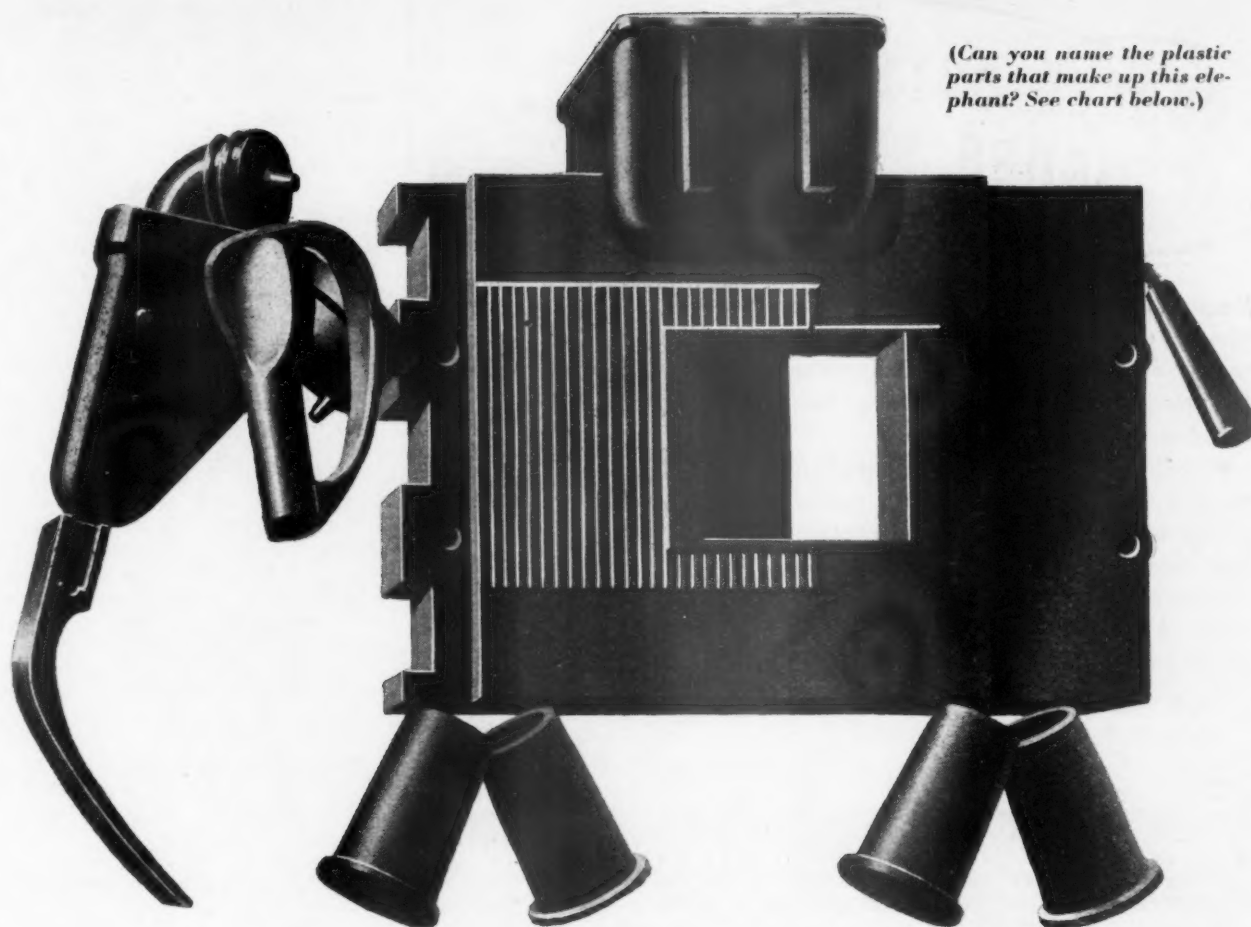
A representative of the Hills-McCanna Company of Chicago, discussed magnesium alloy castings at the October 9th meeting of the Tri-City Purchasing Agents Association, at the LeClaire Hotel, Moline, Ill., his talk being followed by a showing of the moving picture "The Miracle Metal." Forrest D. Kettering, national director, reported on the district council meeting held at St. Louis.

DISCUSS SPORTS AT DAYTON MEETING

The Purchasing Agents Association of Dayton, Ohio, formally opened the fall season September 13th at the Engineers Club, Dayton, with a sports program, at which Si Burick, radio sports commentator was the principal speaker. Previous to the dinner meeting, the members were privileged to sit-in on a broadcast by Mr. Burick over station WHIO, who introduced Russell Wolf to the radio audience as a purchasing agent who also does an excellent job as pitcher in amateur baseball. Mr. Wolf was chairman of the dinner meeting and introduced Mr. Burick who gave an interesting talk on sports including stories from bull sessions with ball players and amusing sports incidents.

New officers taking over at this meeting were President Richard Kelly, Monarch Marking System Co., Secretary Russel E. Wolf, the East Dayton Tool & Die Co., Treasurer Ervin E. Reeves, Buckeye Tool Co., and National Director E. J. Thum, the Specialty Paper Company. President Kelly announced the appointment of the following committee chairman: M. T. Felts, program; Carl F. Woessner, membership; and J. A. Graham, Publicity.

(Continued on page 366)



(Can you name the plastic parts that make up this elephant? See chart below.)

A trunkful of product ideas...

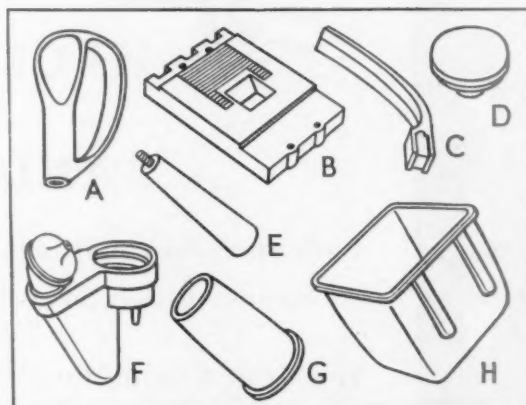
Better product ideas are going to pay off for men in industry, who take them seriously. If you do, please examine this elephant.

He's in a class by himself. He's assembled from eight varied plastic parts, all of them made in Continental Can Company's plastic plant at Cambridge, Ohio. His body is an electric switch box cover; his legs, sturdy outside shells for vaporizers; his trunk, a pot handle; and his ear, a shoe-tree handle.

From Jumbo's different parts you can see how well suited plas-


tics are for *certain* products. Why not let our experienced engineers and designers determine if plastics are the solution for *your* product?

Visitors to our Cambridge plant marvel at the diversity of products made there. We're basing years of designing experience and engineering "know-how" on increased facilities and resources. So Continental naturally has a complete service to offer, one that builds customer confidence when we're asked to develop product ideas.



(A) Shoe-tree handle; (B) Electric switch box cover; (C) Pot handle; (D) Knob; (E) Handle; (F) Liquid dispenser; (G) Outside shell for vaporizer; (H) Eastman Kodak Development Tank.

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COOLER CUTTING at HIGHER SPEEDS

These new Electro High-Speed Grinding Wheels afford faster cutting without troublesome heat development whether the grind is for snagging or for fine finishing.

We believe that war demands made it possible for ELECTRO to show cooler cutting at higher speeds, and present high state of perfection will be the basis for further gains. All we ask is opportunity to prove the cooler cutting at higher speeds of our wheels.

Will you wire us?—or phone
us at Buffalo, WASHINGTON 5259?



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Spartan HACK SAWS AND BAND SAWS

Under present conditions, you need saws that
are manufactured and heat-treated "to take it"!

You "Cut Cutting Costs," too, with Spartan
Hack and Band Saws.



SPARTAN SAW WORKS, Inc.
SPRINGFIELD, MASSACHUSETTS, U. S. A.

BUYER-SELLER RELATIONS PITTSBURGH MEETING

Henry R. Michel of the Westinghouse Electric Corporation and J. B. Connally of the Mesta Machine Company, spoke on "Buyer-Seller Relations" at the October 16th meeting of the Purchasing Agents Association of Pittsburgh, at the Hotel William Penn, Pittsburgh. Also, H. I. McKeever of Westinghouse Air Brake Company entertained the gathering with some of his sleight of hand work.

1 1 1

SHOW MAGNESIUM FILM AT METROPOLITAN ASSISTANTS CLUB

The motion picture "Magnesium, The Miracle Metal", prepared by the Foundry Division of Hills-McCanna Company, Chicago, was shown at the October 9th meeting of the Metropolitan Purchasers Assistants Club held at Midston House, New York City, following a brief talk by R. Schermer, company representative, who briefly reviewed some of the advantages offered by magnesium alloys.

Five new members were announced, namely, Miss Emily M. Meyer, New York Stock Exchange; Alfred F. Mosch, M. W. Kellogg Co.; J. H. Merrill of the Phelps Dodge Company; L. W. Skillman, Consol R. R. of Cuba; and Herbert L. Helmers, R. K. Carter & Company.

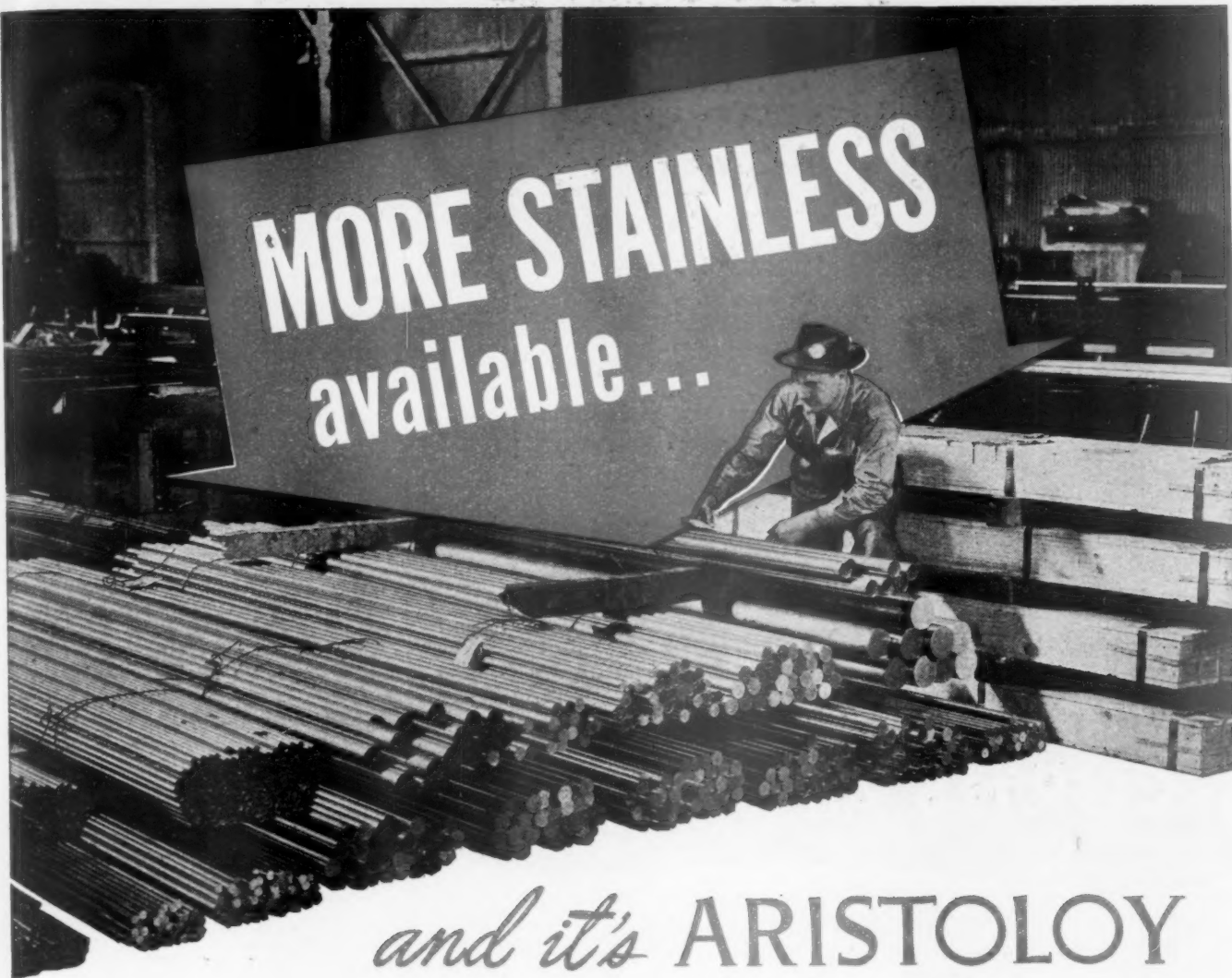
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CAVEAT EMPTOR

Commenting on utilization of surplus materials born of the war, President O. H. Buckner of the Purchasing Agents Association of Portland, states in the *Oregon Purchasing News*, that "The purchasing agent is in a position to make some real contribution to his company first and to the government secondly by utilizing as much of this surplus material as possible at a reasonable price. I know from experience that you cannot depend upon the specifications in these surplus material lists and neither have you an assurance when you do scan a surplus list that the material is available. By all means if you have occasion to buy some of this surplus material you should either inspect it yourself or have some other qualified person examine the materials. Probably because of the changed personnel of these various war plants or the lack of experience of the workers there, the supplies offered for sale are not well segregated by specifications and once you buy the material you will have great difficulty in getting any adjustments and there is also a tendency for someone to undertake to make substitutions."

"But having all of these difficulties in mind, I feel nevertheless that it is our obligation to help use up these surpluses as soon as possible in order that the regular manufacturers and suppliers will not have these large stocks as unfair competition and furthermore from your own company's standpoint if you utilize these surpluses wherever possible you will get back into your regular prewar business sooner than if you wait for supplies to come from the mills and factories."

(Continued on page 368)



and it's ARISTOLOY

In a recent study to determine trends in the post-war use of materials, figures show that 64% of all manufacturers plan to use more stainless than pre-war.

Now is the time to decide upon your source of stainless steels. ARISTOLOY Stainless Steels are superior in quality because we have built our plant, designed our equipment and trained our personnel to produce the very finest in corrosion and heat resistant alloy steels.

Remember the name ARISTOLOY, make it your "BUY" word for top quality alloy steels. Our representative will gladly discuss your problems of steel selection.



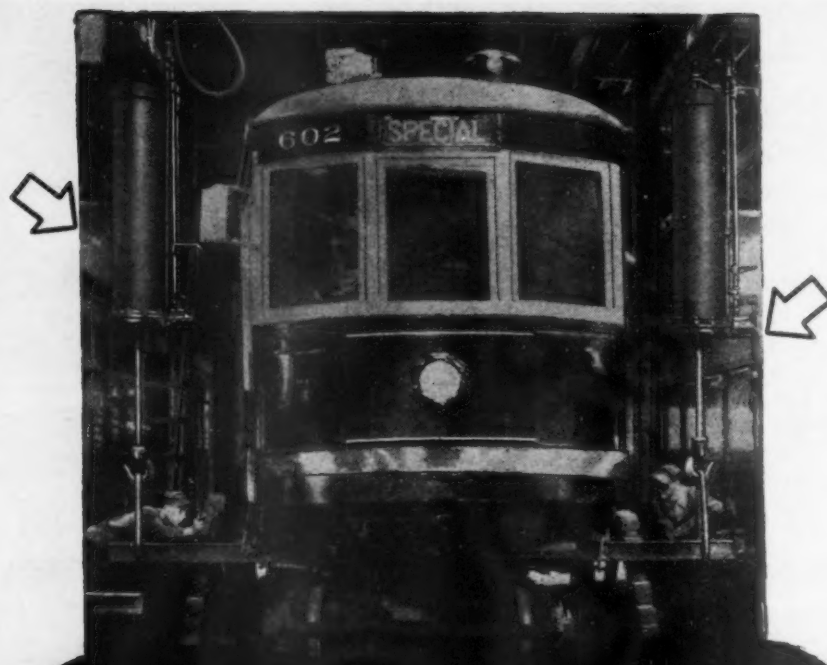
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STANDARD STRUCTURAL ALLOY STEELS
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Street Car Lifted SAFELY, EASILY, ECONOMICALLY with CURTIS Air Cylinders

✓ The above illustration shows how two giant Curtis Air Cylinders lift an entire street car from its trucks. Air power also allows workmen to clean the motors with a stream of air, as well as paint the car with an air-operated spray gun. Air power handles three operations at once.

Engineered to your individual requirements in a variety of applications—including practically any handling, lifting, pushing, or pulling operations—Curtis Air Cylinders and Curtis Air Hoists are stepping up production, saving time, labor, and cutting costs in many industries today.

Curtis Air Cylinders and Hoists are simple in construction, are immune to abuse from overloads, and can be operated by unskilled labor. They provide these important advantages:

- ✓ Smooth, fast—accurate control of load
- ✓ Low first cost—lowest operating expense
- ✓ Light weight—pendant, bracketed, or rope compounded types
- ✓ One-man or one-woman operated—finger tip control

Hundreds of plants have thus increased efficiency, reduced worker fatigue, saved thousands of man-hours, and solved many a hoisting problem with Curtis equipment. It will pay you to write for Form A-4-B, which gives full information.

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Please send me Form A-4-B.

Name.....
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Street.....
City.....Zone.....State.....

SILVER ANNIVERSARY CERTIFICATES AWARDED FORT WORTH MEMBERS

Four members of the Purchasing Agents Association of Fort Worth, Texas, were awarded silver anniversary certificates marking 25 years of active service with the association, at the September 18th meeting of the association at the Worth Hotel. These members are Charles F. Connor, Swift & Company; John B. Davis, Armour & Company; Ed C. Walsh, Fort Worth Stockyards Company, and Charles S. Youngblood, Gulf Oil Corporation. All are charter members of the association and aided in its organization. In addition, certificates were awarded the Acme Brick Company, Axtell Company and the Morrison Supply Company.

Other features of the meeting were an address by Hon. James M. Floyd, who was recently discharged from the U. S. Navy Intelligence Service; an address by Owen D. Story, district vice president of the National Association, and the presentation of a history of the Fort Worth Association by Ed C. Walsh.

1 1 1

CINCINNATI ASSOCIATION VISITS ARMCO STRIP MILL

Marking a revival of a favorite association activity, members of the Purchasing Agents Association of Cincinnati enjoyed a plant visitation at the strip mill of the American Rolling Mill Co., Middletown, Ohio, on October 9th. Following the plant visit, the American Rolling Mill Company served a buffet dinner at a Middletown Hotel.

1 1 1

UNDERGROUND PIPE CORROSION TULSA MEETING

J. C. Stirling, Stanolind Pipe Line Co., Tulsa, Okla., discussed "Protection of Underground Pipe" at the September 24th meeting of the Purchasing Agents Association of Tulsa, at the Chamber of Commerce. Following his talk, a sound picture in technicolor "Pipe Line Construction in the Rockies," a Stanolind project, was shown.

1 1 1

EDUCATIONAL PROGRAM WASHINGTON STATE

Russell Wetherell, purchasing agent for the Olympic Foundry Co., and chairman of the Educational Committee of the Purchasing Agents Association of Washington, Seattle, Wash., has completed plans for a series of educational meetings to be held at 4:30 P.M. preceding the regular monthly meetings of the Washington Association. Among other things it is planned to have representatives of various Governmental Agencies such as the OPA and the RFC which succeed WPB, bring the members up-to-date on changes, eliminations or additions to the new controls.

Legal and economic problems will be discussed at stated meetings, and also paper procedure and purchasing records, and other basic phases of procurement.

T-725 an unequalled Phenolic Laminate ... AS FAR AS WE KNOW !

Superior insulation resistance, low moisture absorption and good hot punching qualities—that's INSUROK T-725—a plastic that's really worth shouting about! For parts made of INSUROK T-725 can be "sanded down" to meet very close thickness and surface parallelism requirements—yet retaining their superior insulation resistance, punching and low moisture absorption qualities, which are *unequalled by any other phenolic laminated material we know about.*

INSUROK T-725 is an improvement on T-640 and therefore has uniformly superior electrical values and mechanical characteristics. Altogether, we think it adds up to important news for those working with electronics applications. Richardson Plastics are waiting to give you the full story. Write today—there's no obligation.

INSUROK *Precision Plastics*

The RICHARDSON COMPANY

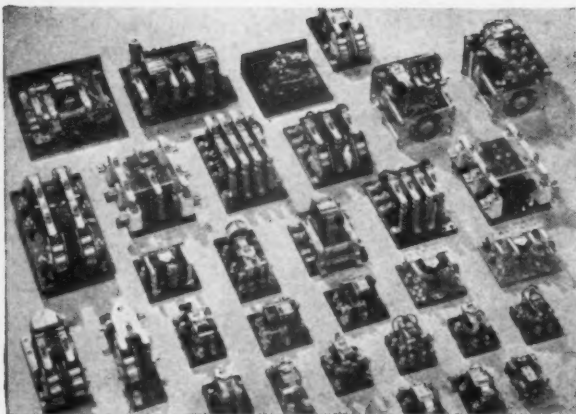
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Bulletin 105—"Little Giant Relay" single pole, single and double throw. Controls $\frac{3}{4}$ HP on 115-230V.

WARD LEONARD RELAYS include types and sizes for every application. They all have crisp action, are dependable and durable yet consume but little current. Send for the data bulletins of interest to you.

Bulletin 362—Motor Driven Time Delay Relays for operation on alternating current.

Bulletin 351—Thermal Time Delay Relays with thermostat built into relay assembly.

Bulletin 106—Midget Relays for light duty available in single and double pole, single and double throw.

Bulletin 81—Intermediate Duty Relays in single and multipole arrangements, single and double throw.

Bulletin 104—Midget Relay for tight places—Vibration resistant—Double Pole, Double Throw—Available for 6 to 115 volts A.C. or D.C.

Bulletin 131 and 132—Heavy Duty Relays single and multipole, single and double, contacts rated up to 25 amp. on 125-250V.

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Bulletin 103—Aircraft Power Relay. Single Pole, Single Throw for 24 volts at 25 amps. D.C. Withstands high values of acceleration of gravity, shock, and vibration.



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Quality
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ADHESIVE and chemical mix coatings expertly applied to paper, cloth, foils and other materials.

Fabrics backed, laminated or combined to your specifications, and special purpose formulas developed in our own Laboratory.

65 years of "Know-How" deliver "Use-Proved" tapes and backings deserving the enthusiastic approval they earn on the production lines.

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PETERSBURG, VA.
Wm. A. Briggs, 224 No. Sycamore St.
PORTLAND, ORE.
A. B. Boyd Co., 5 E. Union & Morrison
SAN FRANCISCO, CAL.
A. B. Boyd Co., 1235 Howard St.
SEATTLE, WASH.
A. B. Boyd Co., 404 Dexter Ave.
ST. LOUIS, MO.
C. E. Withins, 1602 Locust St.
WALLASTON, MASS.
S. B. Scott, 123 Elm St.
CAPE TOWN, S. A.
K. Stein Agency Co., 12 Plain St.

Buying Patented Articles

(Continued from page 135)

ented articles for the City of New York. This statutory method came into existence in 1873 through enactment by the legislature of Chapter 335, Section 115, as amended at the same session by Chapter 757, Section 22, which provided:

"except for repairs no patented pavement shall be laid, and no patented article shall be advertised for, contracted for or purchased. Except under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to secure which shall be prescribed by the board of estimate and apportionment".

This statutory rule still applies to the City of New York and is now found in Section 348 of the New York City Charter.

The Courts have often passed upon the meaning of this charter provision which has for its purpose the securing of competition in the purchase of patented articles. Under this statutory method the specification of a single patented article is illegal. Neither is the equal opportunity rule with the successful bidder securing the patented article at a stated price, even with the approval of the board of estimate, within this charter scheme, since there is no competition on the patented article itself. But the alternate rule with award to the lowest responsible bidder on any alternate has been judicially recognized as the correct procedure to follow to secure the competition called for by the Charter, because in such case the patented device itself competes with other patented or non-patented devices specified for the same purpose. The combination rule previously alluded to, with the award to the lowest responsible bidder, complies with the Charter.

The New York City Charter contains what may appear to be a new method for procuring patented articles without competitive bidding, by providing that if "the board of estimate by a three-fourths vote shall find it is to the interest of the city in a particular case to purchase and shall authorize the purchase of a patented article as to which competition cannot be secured".

This provision really permits the waiving of competitive bidding, a power which the Board of Alderman have under the old charter and

(Continued on page 372)

ROSÁN INSERTS AND STUDS

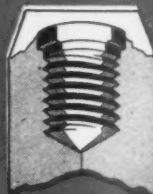
revolutionize fastening in
SOFT METALS • PLASTICS • WOOD



ROSÁN INSERT MOLDED IN



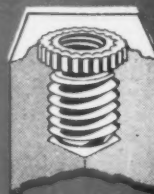
INSTALLATION OF INSERT WITH LOCKING RING



1. Drill, counter-bore and top



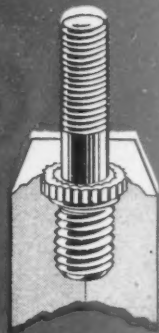
2. Screw insert flush with surface



3. Drive in locking ring



ROSÁN STUD



Permanent because locked in the material.

May be molded in, or installed later for repair or replacement purposes.

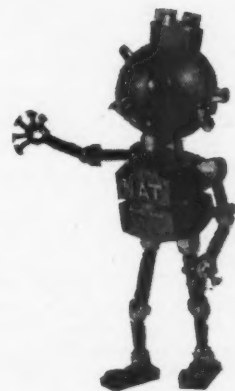
Removable by drilling without disturbing the parent material.

The heart of the Rosán Locking System is the locking ring. Its serrations are broached into the parent material and prevent turning or loosening under vibration or torque.

Rosán Inserts and Studs are easily installed, can be easily removed. They do away with the need for oversize replacements, and so effect great savings in parts inventory, in addition to the savings in parts salvaged.

Leading aircraft companies have adopted the Rosán Locking System. The automotive industry and others are also recognizing the advantages of this revolutionary method of fastening.

Write or wire for full information.



National
HEADED AND UNHEADED
PRODUCTS

THE NATIONAL SCREW & MFG. CO., CLEVELAND 4, O.



Protect your products and property against rust

Purchasing agents everywhere specify NO-OX-ID and NO-OX-IDized wrappers for lasting moisture-vapor protection. The combination has served them well on pipe lines, metal structures, packaged items, and finished parts in storage and transit. When you write "NO-OX-ID" on the order you are making certain that rust is stopped cold. Consult us about all your corrosion problems. Our technical staff will be glad to work with you.

Products in Process

Coat finished parts with NO-OX-ID for protection in process; applied by dip, brush, or pressure pump to eliminate moisture-laden air.

Packaging Shipments

Form a waterproof pack by wrapping products in NO-OX-IDized wrapper and lining containers with NO-OX-IDized bag box-liners.

Products in Stock

Coat products before packing in individual cartons. Keeps finished surfaces bright indefinitely. Can be easily removed if desired.

Long-Time Storage

Equipment in sheltered storage or out-of-doors remains rust-free when protected with NO-OX-ID and NO-OX-IDized wrapper.

Maintenance

Steel structures, both inside and outside, are protected against the most severe corrosive conditions when coated with NO-OX-ID.



The ORIGINAL RUST PREVENTIVE

Dearborn Chemical Company, Dept. AA, 310 S. Michigan Ave., Chicago 4, Illinois

Buying Patented Articles

(Continued from page 370)

which is now possessed by the Board of Estimate under Section 343-a of the New York City Charter. For many years prior to the adoption of the New York City Charter the power to waive competitive bidding by the authorized city body was considered sufficient to permit the purchase of a patented article in the open market without competition.

Under the charter provision for patented articles it is the Board of Estimate that determines the conditions for fair and reasonable competition, not the contracting official.

Many city contracts now contain the "or equal" clause and it has led to many disputes between contractors and city officials when a substitute in place of the named article is offered as equal. These disputes are often bitter and lead to bad relationships which tend to hold up a job. The successful experience of the Department of Purchase in procuring patented and proprietary articles by means of lists of acceptable products, which are of the same competitive class, promulgated under resolutions of the Board of Estimate as "the conditions" for securing competition, would appear to be the solution of this "or equal" problem. With such lists of approved articles, contracting agencies on construction or work or labor contracts could specify what is needed without the usual difficulties, because the contractor would be required to furnish one of the articles named in the approved list.

No insurmountable barrier exists to the acquisition of patented articles by public bodies. Any judicial or statutory impediment can be removed by appropriate remedial legislation, as the source of the problem is of legislative origin.

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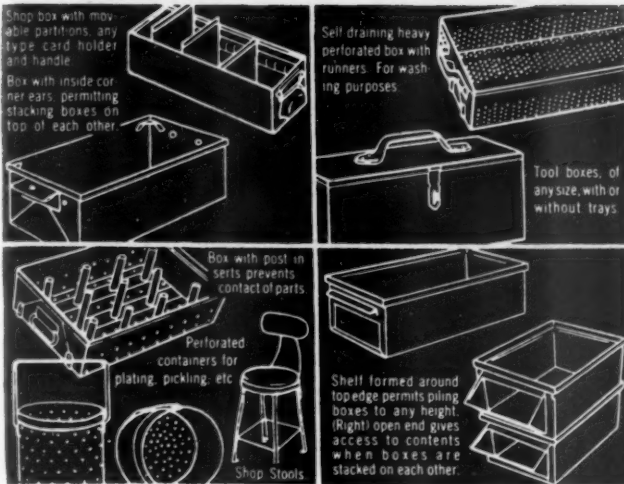
Testing Organic Finishes

(Continued from page 123)

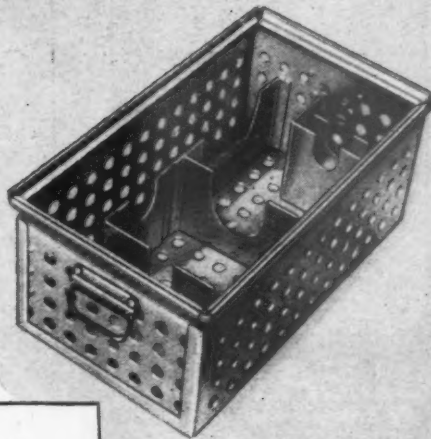
made up of a cycle, there is no way of determining which characteristic resulted in failure. Figure 8 shows results of some fading tests.

After a panel has been put in sunlight for a certain length of time or exposed to an electric arc, it will fade or darken, but if it is then put in the dark or kept at normal room

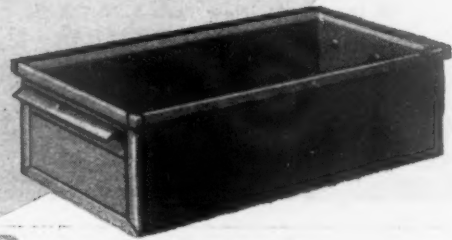
(Continued on page 374)



Steel Piling Box with fixed or removable partition designed to hold one set of parts needed for any given assembly or sub-assembly. Big time-saver.



Stacking or Piling Box of excellent design, strong and durable. Any size, to suit your needs. Above: Triple Hem Shop Box made with straight or tapered sides.



Shop Barrels, any style or size, built for long life and hard service.

Shop Stools with steel, solid wood or laminated wood seats. Sturdy reinforced legs, of any desired height.



Comfortable Back Rests of several different designs, may be had at a slight extra cost.

TO KEEP PRODUCTION

flowing smoothly

Where small, loose products are used or produced, perfecting the materials handling system is often the most important factor in attaining lower production cost. An essential part of the system is properly designed, light and strong metal shop containers for the pickup, collection, and conveyance of materials to and from machines, finishing, assembly, packaging and storage. Cleveland shop boxes, barrels, cans, pans and pails are usually custom-

made, because the small extra first cost is trifling compared with the advantages gained, year in and year out, by having containers of exactly the right size, shape and design to fit individual needs and special handling requirements.

Catalog, prices, and design service on request, without cost or obligation.

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Cleveland Wire Spring Co.
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Cleveland
STEEL SHOP EQUIPMENT
STOCK STYLES FOR GENERAL UTILITY
BUILT-TO-ORDER to meet special requirements

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Oakite TRI-SAN... a new, triple-acting chemical agent specially designed for wide usage in factories, mills, shops... wherever low-cost industrial housekeeping and odor control are essential requirements.

Oakite TRI-SAN's combined disinfecting... deodorizing and cleaning properties make it an ideal material for maintaining high sanitation standards in washrooms, lavatories, locker rooms... for destroying obnoxious drain odors, garbage can and similar odors.

Triple-acting Oakite TRI-SAN's outstanding feature is its extremely low cost... normal solutions of one ounce TRI-SAN to a gallon of water cost only a cent a gallon. A specially-prepared 20-page booklet on "Increasing Efficiency of Industrial Hygiene" mailed FREE on request!

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MATERIALS METHODS SERVICE

Keep
Buying
Bonds

CLEANING
FOR EVERY CLEANING REQUIREMENT



Testing Organic Finishes

(Continued from page 372)

temperature, a lot of that fading will disappear. If there is any chalking of anything of that kind, the gloss can be checked by the glossimeter. It is simply light collector and a light which reflects across the panel; the photocells pick it up and measure the amount.

Water-soak tests are necessary on some panels and are made at about 100 to 125°F (Figure 9). Some panels which will not fail under ordinary condensation will fail if soaked in water. Water-soak tests may go as far as 2,000 to 4,000 hours before one fails.

Humidity tests—and this is just arbitrary and may not be right, are made at 125°F and 100% humidity. It is done by venting live steam and air into the top of the room. There is not very much stratification. On some types of materials, it is necessary to make a cycle test at this point. In other words, some paints will soak up a little moisture, they will soften a little bit, and then they will stay just about as they were. They won't fail by blistering or crazing or checking. They may dull down or discolor a trifle, but they are still pretty good. On the other hand, those same finishes if put into a cycle test and allowed to dry out periodically, will fail. That is especially true of materials which are made for exceptional grease resistance and which sacrifice some of the water resistance qualities to gain in grease resistance. What probably happens is a swelling up of the film due to the absorption of moisture and when it dries out, the material is so hard it cracks. Figures 9 and 10 show some of these failures including both blistering and crazing.

Any organic finish will eventually fail in grease or animal or vegetable oils. The one that will give the least trouble should be selected. Grease resistance panels are made by taking a panel and smearing one half of it with a mixture of 50% oleic acid and 50% lard oil, and placing it in an oven at 110°C for 200 hours. The panel is examined about every 24 hours to determine if all the grease has been absorbed—in which case more is added. At the end of 200 hours, it is taken out, washed with a mild soap, and examined. In some cases the finish is lifted just as if a varnish remover had been acting on it. In other cases, there is simply a little discoloration. Then new scratch and bend tests are made for comparison with original. Some-

(Continued on page 376)

INDUSTRIAL PARTS FOR ALL TYPES OF PRODUCTS

From minutely accurate plastic scale or dial for delicate instruments to heavy metal nameplate for giant rugged machines, Bastian has been successfully making parts for America's leading manufacturers for decades.

We would like the opportunity to consult with you and help you solve your particular parts problem.

For samples of our work, just fill in coupon below and we'll mail you this booklet of ours on Industrial Parts together with samples of our work and an idea of prices.



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Which material is best for your molded part or product

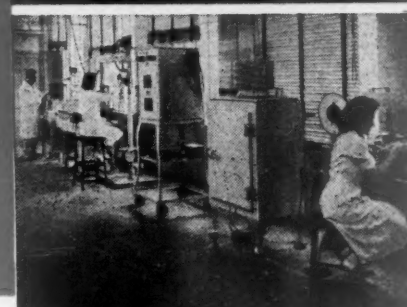
PLASTIC

?

SOFT RUBBER

HARD RUBBER

Many designers and users of molded parts and products have found their experimental and production problems greatly eased when they have chosen a molder who has the research and engineering facilities to help them select the right compound for the job, and the manufacturing facilities to follow through with deliveries that meet specifications.



Upper Photo: Chemical Research and Testing: In this modern, fully equipped laboratory our trained staff tests materials for adherence to your specifications; and continual research is carried on to find a better material for your product.

Lower Photo: Physical Research and Testing: Largely responsible for the close tolerance work we have been able to maintain both on government and civilian work, this physical laboratory has all the modern equipment for the research and quality control your product requires.

The importance of selecting the right material . . . and molder

Selecting the right material is the first serious problem to be overcome after preliminary drawings of a part or product have been made. It involves careful research on all of the materials available and a painstaking matching of their properties with the requirements of the job. Mechanical, electrical, optical, thermal, fabricating and molding properties, stability and the effect of chemicals, and those general characteristics such as moisture absorption, solvent action, aging and weathering, taste and odor have to be explored for their effect on the product from design to actual performance.

The problem of selection is not an easy one in these days of rapid and glamorous advance . . . particularly in plastics. New compounds constantly emerge. The properties of Cellulose Acetates, Acrylics, Phenolics, Polystyrene, and Vinyls, for instance, differ a great deal. Research on rubber continues and new synthetic formulas are being developed. When natural rubber is available in quantity again, we will have a still greater range of compounds.

From appearance to performance, the proper material depends on the

job your part or product has to do. A plastic, hard or soft rubber, a metal, or a combination of two or three of them may be best.

Complete Service

Here at the Vulcanized Rubber and Plastics Company, we have the chemical and physical research and testing laboratories and staff to help you find that right material. And we have a wealth of experience in fabricating molded forms. Starting over sixty years ago with hard rubber, one of the first plastics, we have constantly sought to convert any new development in plastics to the mutual benefit of our customers and ourselves.

Our engineering staff will be glad to help you

Just tell us where your part or product goes to work or give us the drawing and specifications. If we should find that the part or product doesn't belong, economically or physically, in any one of the wide range of plastics, hard rubber, soft rubber, or molding methods that we are set up to handle, we will frankly say so and recommend what we think is best. If you would like to have an engineer call to discuss your application, please write Dept. E.



Plastics? Fine. But are you sure Hard or Soft Rubber won't do it better?

Just as it made sense for us, with our molding experience, to go into the new plastics, it also made sense to continue our research and fabricating on the older plastics . . . hard and soft rubber. In many applications rubber works far better than any of the new plastics. For instance, in water meter applications, none of the new plastics have the over-all properties particularly the dimensional stability and high resistance to moisture and solvents, that would enable them to be used as universally. The same reasons that hold true for its choice in many applications in the electrical field where it withstands submersion and exposure to gases much better than newer plastic materials.

Vulcanized Rubber and Plastics Company
formerly The Vulcanized Rubber Company
Manufacturers of Rubber and Molders of Plastics
263 Fifth Avenue



50 YEARS AGO



the first automobile race

On Thanksgiving Day, 1895, the first automobile race ever run in America started from the building now housing the Museum of Science and Industry in Chicago. This event started the great race of industrial progress in America—a progress which has been paced by the dynamic automotive industry.

To commemorate this Golden Jubilee of the automobile, the Museum of Science and Industry will recreate this race over the same course, with the same type cars. The time—Thanksgiving Day, 1945.

Industrial Progress
MAKES AMERICA GREAT

AN important contributing factor in the production of more and better things for better living has been the development in the use of cutting fluids and specialized lubricants. Thirty years before the first automobile race, the D. A. Stuart Oil Company began furnishing industrial oils to American industry. And ever since, this company has devoted itself exclusively to the job of making better cutting fluids and helping industry use them to greatest advantage. This long, valuable background, as well as the latest experience resulting from Stuart's close integration in the war production program, is at your service. In your plans for future progress, the Stuart organization would like to help you use cutting fluids to the best advantage. Invite an engineer to call on you. Write D. A. Stuart Oil Company, Limited, 2727-31 South Troy Street, Chicago 23, Illinois.

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LIMITED

ESTABLISHED 1865

Stocks in Principal Metal-Working Centers



Testing Organic Finishes

(Continued from page 374)

times the finish is apparently improved. The grease lubricates the top surface so that the cutter slides over.

Rating the Results

There are a number of special tests which are made on occasion such as staining with fruit juices, staining with coffee or tea, and odor tests. It is necessary to check the odors on any finishes going, for example, into the inside of a refrigerator. The method used now is to dilute the amount of air taken in from the sample and the outside room air down to the point where the odor cannot be detected; in other words, it is a threshold failure, but results are hundred's of per cent out. As yet no one has worked out a satisfactory method for measuring odor.

Now the point comes up on how to evaluate all the various factors. One way is to make up a chart and grade all the panels. Each characteristic is given a rating from one to ten. Certain characteristics such as hardness, impact, fading, humidity, color and gloss retention, and ability to be repaired must pass with at least 8 or over.

It takes some judgment to weigh each characteristic in evaluating the finish and, from time to time as experience dictates, the relative weight is changed. The attached valuation chart is now obsolete but will serve to illustrate the method. You will note that the valuation would be 100% only if each characteristic received the perfect rating 10. Failure of any critical characteristic immediately eliminates the finish. The best finish for the application, or several accepted finishes may be selected by methods which are unprejudiced, free from personal bias, and which are reproducible. The causes of failure and the characteristics of the finishing system needing improvement are readily shown. Therefore the intent of the testing method has been achieved.

1 1 1

GOVERNMENT HARDWARE SURPLUS

At a recent meeting with Surplus Property Board staff representatives, the Department of Commerce, OSP, and other government agencies in Washington, the Builders Hardware Industry Advisory Committee concluded that the disposal of government surpluses would not seriously interfere with regular industry operations with the possible exception of padlocks.

STARTING POINT for Product Improvement



Let an individually-made "PREMIER PREVIEW" show you how Colloid Mill Processing gives better output, Production Economy and Efficiency

*I*t's one thing for a purchasing executive to read about a colloid mill . . . how it can improve emulsification of liquids, disintegration of solids . . . dispersion of pastes. But it's more convincing to learn at first hand how his own materials can be processed in a Premier Colloid Mill.

Let a test show you that the colloid mill method of dispersion means: — fine particles made finer by hydraulic shearing action . . . product ingredients uniformly mixed . . . homogenizing done economically. With Premier it means *better products more profitably processed*. Among them are adhesives, sealing compounds; asphalt emulsions; ceramic colors; coating and waterproofing emulsions; cosmetics; foods and beverages; inks; oil emulsions; latex — synthetic and natural; lacquer emulsions; leather finishes;

lubricating oils, greases; pigment dispersions; organic chemical dispersions; paints, lacquers, varnishes; paper coatings, fillers, waterproofing; pharmaceuticals; plastics, resins; polishes, waxes; textile finishes.

Premier is equipped to make individual test runs. This affords you an authentic Premier Preview made in the testing department of a completely-equipped laboratory and carried out by technical men specializing in colloid chemistry. All you have to do is send your material to us at Premier, and compare the results with those produced by your present methods. It will pay you to compare the costs, too — and we can give them to you. *Premier Mill Corporation, Factory and Laboratory, Geneva, N. Y.; General Sales Offices, 110 East 42nd St., New York 17, N. Y.*

DESCRIPTIVE LITERATURE ON REQUEST

THE PREMIER MILL

Better products more profitably processed

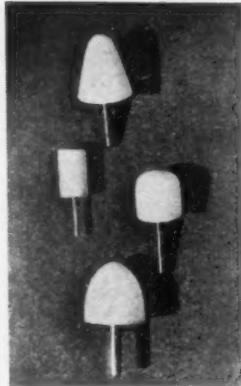
FELT BOBS ARE THE BEST "TOOLS"

FOR MANY DE-BURRING OPERATIONS

They hold their shape better. They hold the head better. Removal of metal is more easily controlled.

If you are having trouble with present de-burring operations — trouble such as exceeding tolerances, too many rejections, slow production — why not try felt bobs? They're doing a fine piece of work in hundreds of plants where formerly de-burring operations had been causing such troubles.

Paramount Brand FELT BOBS — made by America's oldest felt manufacturers — come in many standard shapes. Ask your local supplier for descriptive literature. If standard shapes or sizes will not fit your requirements, write us. We can prepare special shapes or provide blanks for you to cut your own shapes.



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Established 1824

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Stronger Fastenings*



HY-PRO TAPS

Threaded parts of your assembly can be fastened with increased strength and resistance to vibration by tapping all holes with HY-PRO Ground Thread Taps. Strong, tight fastenings result from the close tolerances of precisely tapped threads that are perfectly mated with screw or bolt threads to form an enduring union.

PROMPT DELIVERY. Many special as well as standard taps in stock.

COMMERCIAL, PRECISION
SPECIAL
GROUND THREAD TAPS

Send for Catalog on Company Letterhead

HY-PRO TOOL CO.
New Bedford, Mass., U.S.A.

Pop on the Prowl

(Continued from page 138)

they left. "Dennis, if we buy this shop you're superintendent. If we don't, you've got a good job in the Ackroyd plant any time you want it."

Dennis Callaghan grinned his appreciation. "That's a bet, sir," he said.

Next day they settled. J. B. got proper sale papers, including patents and everything else, turned over his checks; and the two of them climbed into the long, lean coupe, and scooted for home.

Nothing more was said, but James Anderson got a bonus check in four figures a little later.

Business Frontiers

There is a tendency in some quarters to consider that the function of a purchasing agent is to sit on his tail in a luxurious office and purchase—nothing else but. It's a hell of an idea, at the best. The purchasing officer, if he is wide-awake and watching his navigational instruments, is in better touch with the cock-eyed universe than any other member of the faculty except the man who directs sales; and he is in better shape to pioneer paths through the wildernesses of business than even the sales manager. The latter has to jump faster, but he doesn't see so much of the landscape. He can't take time to roll back on his hunkers and admire the picture he has just painted; that picture is gathering dust in the attic and a new one is on the easel.

But the purchasing officer, if he has a properly trained gang—and he's deficient in his attention to business if he hasn't—can divest himself of routine. He can take time, now and then, to balance himself on what have been termed "the tuberosities on which man was designed to sit and survey the works of creation." He has a chance to stop, look, and listen. At times he has to sprint out about seventy-seven miles ahead of the rest of the crew, and be waiting at the crossroads when they finally catch up.

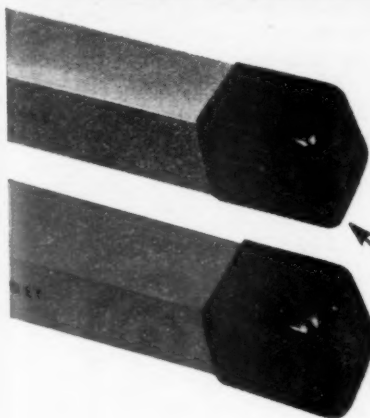
If he's to be a real purchasing agent, he has to be *there*.

Where you find one Pop Anderson, you find several thousand purchasing officers who buy as they are told and don't worry about beating anybody at the gun. The purchasing agent, by right, should not only be posted on all the stuff appertaining to his business, but

(Continued on page 380)

CARMET

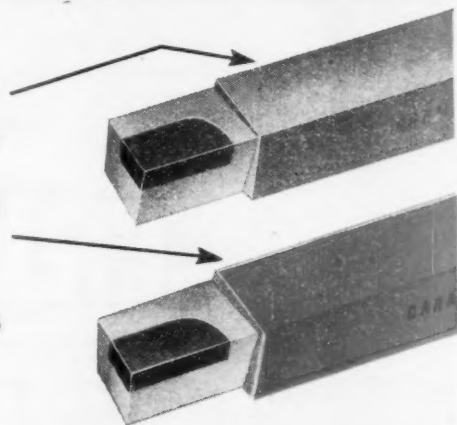
Carbide Tools and Tips



★ Blue Shanks for Iron and Non-Ferrous Metals

★ Red Shanks for Steel Cutting.

★ Wax Caps Protect Tips in Stock and Transit



EFFICIENTLY BOXED

Carmet sintered carbide tool bits are packed for shipment in strong, metal-reinforced boxes of distinctive design. The grade, size and number of pieces are marked on each end of the box, for convenience on your stock shelves.



EASY TO IDENTIFY

In addition to the box marking, and to the shank coloration (see above), each Carmet tool bit is stamped with the name and grade number . . . your stock clerks and machine operators can't mistake them.

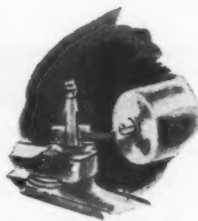


*All the
Data on
CARMET*

Send for your copy

The 16-page Carmet Catalog contains full data on types, grades, sizes and applications of standard blanks and tools; information on special sizes, tool shank steel, etc. Write for it today.

ADDRESS DEPT P36



TOPS IN CUTTING PERFORMANCE

Carmet carbide tips are produced by advanced techniques, under conditions of rigid control that maintain complete uniformity to type and grade. These carbide tools can show you tremendous increases in cutting speeds, and corresponding improvements in your finishing costs. • Let our Service Engineers work with you to fit Carmet tools into your operations.

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EVERY TRICO is a Champion!

Every TRICO PRODUCT illustrated is "tops" in its field. Each is famous for its proven dependability and "know how" engineering that assures lowest maintenance costs, maximum protection against unnecessary shutdowns, lost man-hours, replacements and repairs.

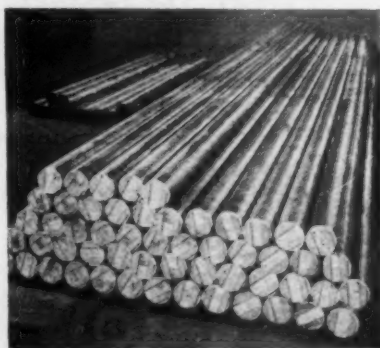
Users of TRICO FUSES and Accessories, Automatic Oilers and Air Guns know that they are steps ahead in being able to produce MORE — FASTER — BETTER and at LESS COST!

There's no substitute for quality and performance. Make sure you get both . . .

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Welded Stainless Tubing

4" to 14 3/4" O.D.

Uniformity in roundness and in quality of welding characterizes Pittsburgh Piping Welded Stainless Tubing. Available in most stainless alloys, in sizes 4" O.D. to 14 3/4" O.D., and in wall thicknesses ranging from 7/16" to 1/2". Write for data sheet.

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KEEP UP WITH THE TIMES

Free bulletins and catalogs describing latest developments in equipment, materials and products are listed in the "Know How" Pages, 10, 12, 14 and 16 of this issue.

All yours for the asking. Just check the coupons and send them to PURCHASING Magazine.

Pop on the Prowl

(Continued from page 378)

should be a sort of combination of Magellan, Columbus, Kit Carson, Daniel Boone and Little Orphan Annie. When old Moltke listened to some talk about a war with France, he just grinned a weazened grin, lit another smoke, and fished some plans out of a wall cabinet. The campaign was there, complete. The men were trained, the guns and ammunition and uniforms were ready.

I wouldn't say the German ideas about warfare were generally popular about now, and some of the stuffing has been let out of them. But old Moltke had his job, and he was ready when the time came.

Out in the wilds of Michigan there operates a modest old gentleman by the name of Ford—if we are related it's a very remote connection—and this Ford, by thinking leagues ahead, has placed industry for forty years. He has some of the qualities that go to make up a first-class purchasing agent; and he has made enough money out of them to finance among other things, a weird dance band on the radio every Saturday night. Ford takes the positive and progressive view that, instead of all our frontiers being mopped up leaving us no place to go, that more frontiers are opening up all the time. He is right, and the fraternity of purchasing agents and officers and directors and vice presidents ought to be snooping out those frontiers.

That's emphatically their job.

Suppose the boss is hard-boiled and doesn't approve? What the hell? There are other bosses.

1 1 1

GUESTS

"As in the past," states the bulletin published by the Purchasing Agents Association of St. Louis, "our meetings are not private affairs and if there are any other members of your firm interested in attending, please bring them by all means. We have an interesting panel of speakers on the program and it should be educational."

THE PURE OIL COMPANY, Chicago

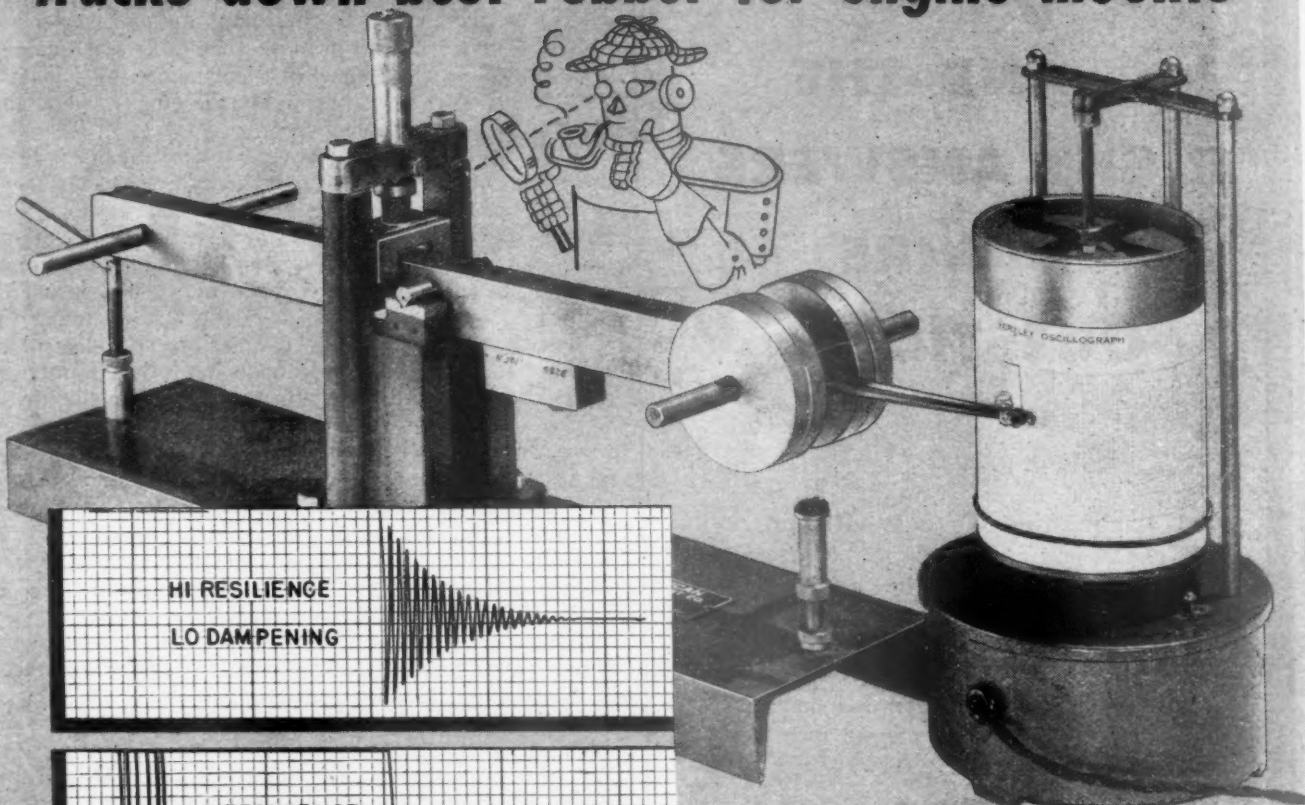
A COMPLETE LINE OF INDUSTRIAL PETROLEUM PRODUCTS

A Pure Oil engineer will help solve your lubrication problems. Write today.



BE SURE WITH PURE

Mechanical Detective tracks down best rubber for engine mounts



The Yerzley Oscillograph is used by ORCO technicians for laboratory evaluation of engine mount materials. Typical test charts shown at left.

SHOCK and VIBRATION continue to be "Engine Enemies No. 1." But greater control of these "enemies" is made possible by a "mechanical detective" known as the Oscillograph.

Function of the Oscillograph is to "track down" the elusive characteristics of rubber and rubber-like materials compounded for engine mount specifications.

Resilience measurements under both static and dynamic conditions are made with the Oscillograph. Determining the characteristics of engine mount materials narrows

down to a finer degree of accuracy. The search for the best compound to meet a given combination of conditions becomes almost a routine procedure.

The Oscillograph is an example of the numerous types of modern equipment employed by ORCO technicians to meet exacting specifications for mechanical molded and extruded rubber and synthetic rubber parts and products for diversified industries.

When YOU face a problem in rubber . . .
CALL "ORCO."

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PAGE *for* WIRE

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WHAT SIZE WIRE?

What size will do the job best and most economically? **PAGE** can give you the answer—and supply the wire.

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PAGE makes wire in many standard shapes. If you need a special shape, **PAGE** can make it for you—in end-section areas to .250" square—widths to 3/8". You draw the shape—**PAGE** can draw the wire.

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REPORTS AVAILABLE ON IMPORTANT ENEMY TECHNICAL ADVANCES

FIRST results of an intensive study of enemy technical advances have now been made available to industry by the Enemy Technical Reports Committee, which is composed of War Production Board and Foreign Economic Administration Representatives. Dr. Donald B. Keyes, the committee chairman, announces.

WPB and FEA sent more than 200 technical experts into Germany, some of them before V-E Day, in an attempt to review thoroughly the enemy's outstanding industrial developments.

The first list released covers nine subjects. These are being made available to all the industries concerned.

The first three of the reports made public were studies of the utilization by the Germans of synthetic rubber in tire manufacture, medical and mechanical goods. These reports were made by rubber specialists headed by Russell Hopkinson of the U. S. Rubber Co.

A survey of the German magnesium and electrolytic chloride industry has been made by Ralph Hunter of the Dow Chemical Co., disclosing the new developments.

The German fastener industry—bolts, nuts, rivets and screws—has been reported by C. F. Newpher, National Screw Manufacturing Co., of Cleveland, Ohio.

The rubber specialist group, under Mr. Hopkinson, has also brought back a translation of a captured report on advances in acetylene chemistry, written by Dr. Walter Reppe, research director of the German I. G. Farbenindustries plant in Ludwigshaven. Acetylene chemistry was the basis of most of their developments in new plastics and organic chemicals, such as butadiene for the manufacture of synthetic rubber.

(A limited number of copies of these reports is available and they may be obtained from Mrs. Dorothy Gordon, the committee's Secretary, Room 1118, Temporary Building "R", Washington, D. C.)

1 1 1

FEDERAL-AID HIGHWAY PROJECTS

REMOVAL of war restrictions on the use of Federal-aid highway funds, which have been frozen since the beginning of the war, makes possible the early starting of construction of projects totaling more than \$270,000,000 throughout the United States, Alaska, Hawaii and Puerto Rico, says H. A. Dick, president of the Associated General Contractors of America.

In announcing removal of restrictions on use of frozen Federal-aid highway funds, Commissioner Thomas H. MacDonald of the Public Roads Administration, stated that PRA District Engineers had been authorized to approve immediate construction of programmed projects to be financed by these funds. He also said that all Federal-aid projects which were under way when deferred on account of the war, may now be resumed. These projects provide for 316 miles of Federal-aid road, costing \$16,300,000.

Construction may likewise begin on an additional 1,387 miles of highway costing \$43,000,000, provided for in projects which were ready to start when Federal-aid funds were frozen.

To advance delayed highway construction, President Truman also recommended in his recent message to Congress that funds should be released for starting the post-war highway program authorized by the Federal-aid Highway Act of 1944. Under this Act \$500,000,000 is authorized for each of the first three postwar fiscal years.



It has come to this— but we haven't cut Howell Quality

Yes, many of those good dependable Howell Motors have been shipped by air express to those who vitally need them for the war effort. The delivery situation in the entire electric motor industry is just this serious.

But we haven't cut Howell quality in any way. Prewar standards are being rigidly maintained without any compromise whatsoever in quality.

It's to your advantage to bear with us! We recognize our obligation fully and are putting forth our maximum efforts to build more and more motors, and to see that they are distributed among users whose needs are most vital.



The Howell Protected Type Motor, shown, gives complete protection against dripping liquids, metal chips and other falling particles. Completely streamlined—utilizing non-breakable steel frame—malleable or steel base—cast iron end plates and cast iron, weatherproof terminal box are standard construction features. Special horizontal and vertical mountings are available. Available in sizes 5 H.P. and smaller. Other sizes and types available up to 150 H.P.

HOWELL ELECTRIC MOTORS COMPANY
HOWELL, MICHIGAN

Manufacturers of Quality Motors Since 1915

PRODUCTION FLEXIBILITY ... MEANS BETTER GEARS



Fairfield geared power grader.

1 of a series
showing
Fairfield
gears as
used in every
industrial
field

• Fairfield's unusual manufacturing flexibility, which has made possible production line routing of more than 2,500 different items in a single year, means that whatever your gear requirement may be, Fairfield can mass-produce a "tailor-made" product for you.

In every Fairfield gear application, in power graders (see cut), mining machinery, buses, trucks, tractors, or any of an exceptionally broad line of industrial equipment, gear heat treatment and chemical analysis are exactly to specifications.

If yours is a gear problem, write to Fairfield.



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Rest of Surpluses to Be Sold Promptly
By Surplus Property Board

A NEW surplus property disposal regulation designed to speed and simplify sales was announced by the Surplus Property Board. The effect of the regulation is to set up reserves of surplus to take care of preferential buyers—federal agencies, states, municipalities, veterans and small businesses—and let the rest be sold promptly.

Formerly, disposal to commercial buyers was, in effect, delayed for over thirty days in order to allow priority holders first call on surplus goods. Now, property in excess of reserves may be immediately sold to non-government buyers.

The quantities to be reserved will be determined by disposal agencies, based on experience and demonstrated demand, with Smaller War Plants Corporation assisting in determining reserves to be held for veterans and small business. Reserves are to be reviewed and adjusted periodically to prevent excessive stockpiling. Should they run low, because of unanticipated volume of demand, orders for priority buyers may be filled out of unreserved stocks, except those already offered for public sale.

Reserves will include surplus goods utilizable by health and educational institutions, SPB said, since tax-supported schools, hospitals and public welfare facilities are eligible to buy along with other government instrumentalities. Regulations will shortly appear, it was announced, which will permit needy health and educational institutions, as well as needy nonprofit organizations which are not government-supported, to obtain surpluses at discounts which will range down to nominal prices.

Revised Regulation 2, setting up this new policy on reserves, also states that prices to be charged government buyers are to be fair value as set by disposal agencies, and in no case higher than the lowest prices offered any trade level at the time of sale. Quantities to government buyers may be the smallest lots consistent with commercial practice.

Government agencies and state and local governments, SPB added, besides having the privilege of acquiring surpluses on their priorities, may buy in competition with other purchasers at public sales anywhere in the country, but in these cases are not entitled to special priorities, purchase terms, or other conditions.

The revised regulation 2 also directs Procurement Division of Treasury Department to take over the responsibility of acquiring all surplus administrative supplies, such as office supplies and furniture, for federal agencies. The only federal agencies permitted to obtain this type of surpluses directly from disposal agencies will be War and Navy Departments, and Smaller War Plants Corporation which can still buy office and similar supplies for resale to veterans and small business.

The regulation directs disposal agencies to keep government buyers informed of surpluses in the areas in which offerings are made, except that in cases where advertising is the only method of offering no other notice is required. At the same time, government agencies are directed to avoid commercial purchases of goods which could be obtained out of surplus.

The rulings of revised regulation 2, SPB said, are subject to applicable directives of WPB, OPA, and the Department of Agriculture, and apply only to disposals within the U. S. and its territories and possessions.

(Continued on page 386)


MESTA Forgings



Send for your copy of this 64 page booklet containing valuable engineering data. Address your requests to Dept. A10


MESTA MACHINE COMPANY
Pittsburgh, Pa.


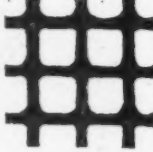




LUDLOW SAYLOR

Precision
Wire Cloths
and Screens for
all industrial
purposes.



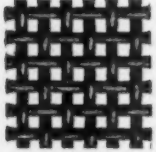
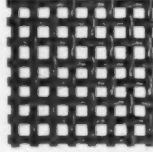



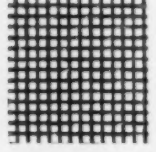
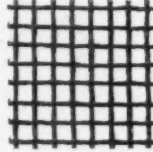
We have been specialists for many years in the making of precision wire cloths, wire screens and woven wire products.

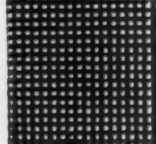
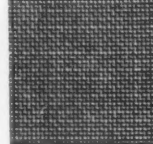
We apply our same precision principles in fabricating wire cloths into finished industrial units, for production or processing equipments or for permanent parts of countless industrial products.

We invite your inquiries for wire cloths of all commercial metals or alloys or weaves, in continuous lengths or cut to size, or processed to meet your individual requirements.

We will follow your specifications and blue-prints exactly as your production engineers have prepared them—or we will submit suggestions for your approval.

"Perfect" alloys and metals	"Perfect" Wire Cloth weaves	"Perfect" Wire Cloth processing	"Perfect" Wire Cloth products
Super-Loy	Arch-Crimp	Bending	Baskets
Steel	Coiled	Binding	Circles
Galvanized	Double-Crimp	Brazing	Cones
Tinned	Double-Fill	Calendering	Crates
Stainless	Dutch	Clinching	Cylinders
Steels	Filter	Cutting	Discs
Nickel-Chromium alloys	Flat-Top	Dipping	Forms
Aluminum	Herringbone-Twill	Dishing	Leaves
Brass	Intermediate-Crimp	Flanging	Lengths
High	Rek-Tang	Flattening	Panels
Low	Selvage-Edge	Forming	Pieces
Bronze	Straight-Warp	Galvanizing	Racks
Commercial Phosphor	Stranded	Painting	Ribbons
Copper	Sta-Tru	Shearing	Rolls
Monel Metal	Triple-Warp	Slitting	Sections
Nickel	Twilled	Trimming	Segments
Any special alloys available in red or wire form	Twisted-Fill	Arc-Welding	Spacers
	Twisted-Warp	Gas-Welding	Strips
		Spot-Welding	Template shapes
			Trays

The LUDLOW-SAYLOR WIRE COMPANY
Newstead Avenue & Wabash Railroad
ST. LOUIS 10, MO.



(Continued from page 384)

They govern general disposal of consumers and producers goods, agricultural commodities, and food, and do not apply to disposals of real property, industrial plants, shipyards, and facilities such as pipelines, patents, merchant vessels and a few other classes of items which are covered by other regulations.

Exempt from this regulation are certain types of disposals which may be made without offering to priority buyers. These include transfer of surpluses to the armed forces; transactions where property would spoil, be damaged, or disrupt storage facilities; where disposal according to the rules would be impracticable or uneconomical; or when the cost of total surpluses of one kind of goods in one place does not exceed \$300.

1 1 1

UNIFORM PRICE FOR ALL SILVER

ESTABLISHMENT of a uniform maximum price for all silver—both foreign and domestic—has been announced by the Office of Price Administration.

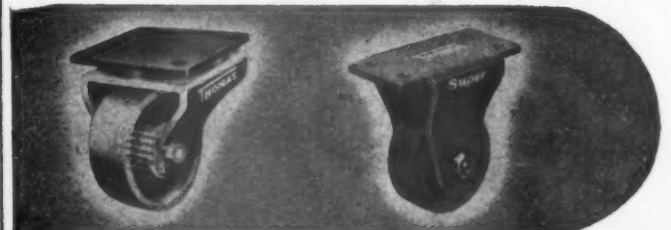
The new uniform price is 71.111 cents per fine ounce, the present price for domestic silver. The ceiling price for foreign silver previously was 45 cents per ounce. The action became effective September 21, 1945.

Foreign silver is all silver other than newly-mined domestic silver or silver sold by the Treasury under the Green Act.

Use of the foreign or lower priced silver has been restricted to the most direct and essential war needs, OPA said, and users of silver for other purposes, such as the manufacture of silverware and jewelry, have been re-

(Continued on page 388)

THOMAS TRUCK of Keokuk



SUPER CASTERS

- Formed steel construction
- Two rows of ball bearings
- Hardened thrust collar
- Hyatt roller bearing
- Machined wheel face
- Grace gun fittings

The Thomas Super Swivel Caster is all that its name implies — Super in construction and performance, under severe service where most casters are unsatisfactory. Use them for your hardest, toughest jobs.

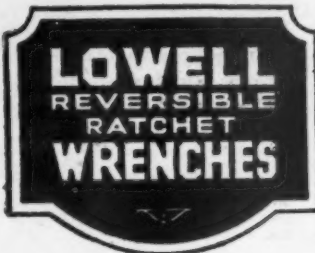
The Super fork is formed from one piece of 1/4" steel plate, offset for added strength. Ball race cups and King bolt welded in place and all moving parts are hardened to move freely and resist wear. Write for new catalog No. 94.

THOMAS TRUCK & CASTER CO.

5145 Mississippi River, Keokuk, Iowa

THOMAS MAKES





A MESSAGE
FOR THE

P. A.

ABOUT THE

1916 LOWELL



THE OLD RELIABLE

This is the only Reversible Ratchet Wrench on the market that has the reversing mechanism at the end of the handle or lever, with the crushing action on the pawls, which is absolutely the strongest possible construction.

It is a time saver for reaching places not convenient for the hand, as the wrench, as well as the reversing of the action of same, can be worked at the end of the lever without being removed, thus the hand is in no danger of coming in contact with cutters or parts of the machine on which the tool may be used.

LOWELL WRENCH CO., WORCESTER, MASS.

(Continued from page 386)

quired to use of the higher-priced domestic or Treasury silver.

War Production Board Order M199, which limited and controlled the uses of silver, however, was revoked August 20, 1945, and continuance of different maximum prices for foreign and domestic metal is no longer practicable.

The price agency added that the 45-cent foreign silver ceiling price is lower than market prices in other parts of the world, and might keep needed foreign supplies from the American market if continued in effect.

(Amendment No. 1 to Revised Maximum Price Regulation No. 198).

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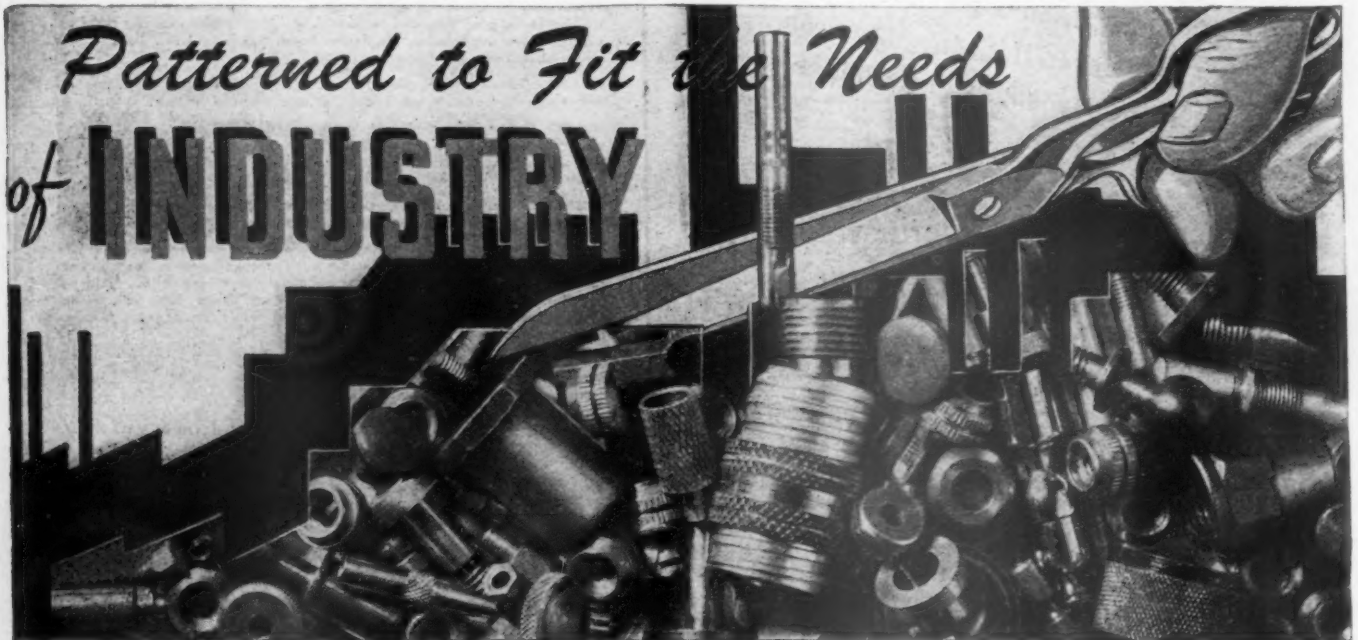
WPB PERSONNEL AVAILABLE

THE War Production Board has set up an Industry Personnel Committee to assist WPB employees in relocating with industry. This committee, appointed by J. A. Krug, chairman of WPB has classified by skills all employees leaving the Board within the next few weeks.

"These people are of high calibre," Mr. Krug said. "In their service to their government in time of war, they have added to the experience they brought to WPB. Industry, I am sure, knows through having worked with these people that they are efficient, that they have the 'know-how' to get a job done. I sincerely believe that industry needs them."

In the managerial field, for example, over 500 em-

(Continued on page 390)



Over the years, industry has placed many of its most difficult assignments with "Newton." The reason for this, we like to feel, is that here the thinking has always been "broad gauge." Plan to take care of the hard jobs, then the easy ones will take care of themselves! Perhaps that is why Newton Screw Machine Products function in such a large percent of the country's manufactured products.

NEWTON SCREW MACHINE PRODUCTS
THE NEWTON MANUFACTURING CO., PLAINVILLE, CONN.



STEEL!

**Mankind's Benefactor on a Thousand Fronts
STRIDES FORWARD!**

Yes, many are the worlds that Steel has conquered! From mighty construction projects like "Boulder" to modern appliances for the conquest of household drudgery . . . STEEL HAS TAKEN THEM ALL IN STRIDE.

Yet Steel's benefactions to mankind are still in their infancy. In technological developments, in engineering, in improved application and utilization, STEEL IS STRIDING ONWARD!

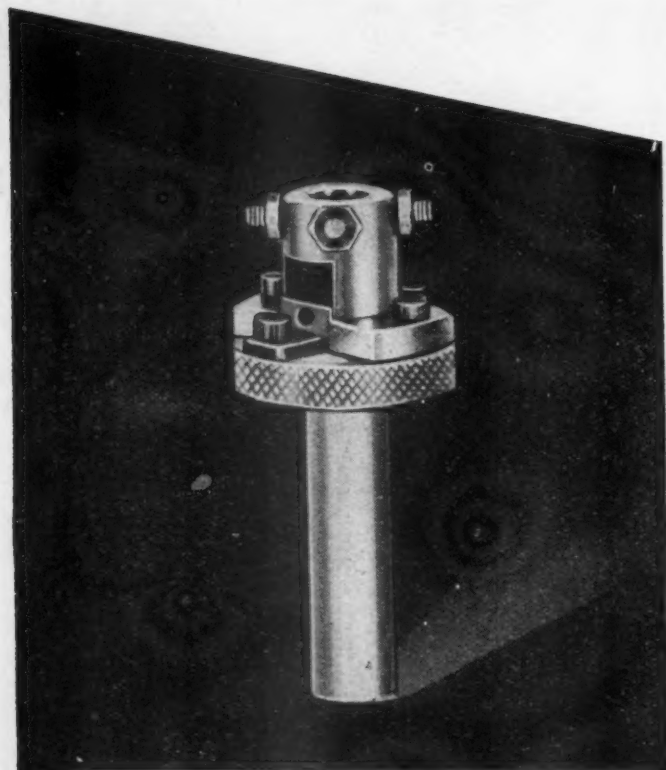
In this march of progress is CAINE'S SYSTEM OF SPECIALIZATION in warehousing and distribution. Through this specialization, Caine Steel Company is able to offer warehouse steels with the same high degree of performance which ordinarily characterizes only those steels which are rolled to specification at the mill.

CAINE *Steel Company*
WAREHOUSE SPECIALISTS
In Sheets, Strip and Flat Wire

CHICAGO, ST. LOUIS, LOS ANGELES
and OAKLAND

MOORE

1314



A New Precision Holder for Better Reaming

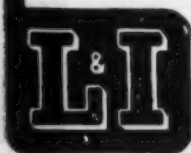
Here is a reamer holder designed and built by reamer specialists, with the one basic idea of bringing to your turret lathes, hand and automatic screw machines, the full precision qualities inherent in L & I Ground Flute Reamers.

The L & I Precision Centering Reamer Holder employs a new design principle. It quickly establishes a new center absolutely true with the spindle axis, and drives the reamer from this dead center. Reamer does not float — but follows true centerline free from weight or pressure. No bushings — no bell-mouthing — no tapered holes — corrects diagonal errors in turrets with worn locks.

Standard model holds reamers from 1/16" to 7/16" diameter interchangeably. Larger model for reamers 7/16" to 1 1/8" diameter.

Write for bulletin giving full specifications and prices.

LAVALLEE & IDE, INC. • CHICOPEE, MASS.



GROUND FLUTE REAMERS

(Continued from page 388)

employees have registered with the committee. These include credit men, retail managers, production managers, department buyers, building managers and superintendents, and purchasing agents.

Business firms needing personnel of any of these classifications are asked by Mr. Krug to communicate with the Industry Personnel Committee in Washington, or with any of the thirteen WPB regional offices.

1 1 1

JUST SOAP AND ELBOW GREASE

IN answer to an inquiry regarding the effective method for the sanitary care of ward floors, toilets and bathrooms, the following is given in "Queries and Minor Notes" of the *Journal of the American Medical Association*:

"As a general policy the use of creosol solutions on bathroom and latrine floors which become soiled by urine and feces is not recommended. Adequate scrubbing with soap and water and thorough flushing with clean water, under pressure when necessary, is sufficient. If desired, the floor may be 'freshened' by flooding with a chlorine solution after cleaning with soap and water. For this purpose 1 ounce of calcium hypochlorite (70 per cent available chlorine) or 2 ounces of chlorinated lime (35 per cent available chlorine) in 5 gallons of water allowed to stand ten to fifteen minutes before flushing off with fresh water is adequate."

Another report based on tests made by the National Bureau of Standards shows that the scums formed on marble shower stalls and terrazzo floors are due entirely

(Continued on page 392)

**ANOTHER
SPECIAL BY
PROGRESSIVE**







CATALOG SHOWS DOZENS MORE
Special heads, threads and finishes on any metal or alloy adapted to cold upset. Weekly output: 25,000,000 pieces. Many specials, suggesting production savings for you, illustrated in latest catalog. Includes weights per 1M standard pieces, dec. equivs. of fractions, other purchasing and engineering helps. Write for Catalog 18.

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42 NORWOOD ST. TORRINGTON, CONN.

*Which combination
will put your product
out in front?*

MAXIMUM RESISTANCE TO
THESE CORROSIVE AGENTS

Sweaty Hands?

Outside exposure?

Humidity?

Abrasion?

Heat?

Chemicals?

Get it with

UNICHROME PROTECTIVE COATINGS

EVERY EXTRA ADVANTAGE you can give your product now will count mightily in the tough competitive days ahead. For example—the advantage of better protective coatings.

Now — with Unichrome — you can get organic coatings with precisely the *right* combination of properties to meet your individual needs. They are coatings that will give your product *maximum* possible protection—under

all the various service conditions encountered.

Why? First, Unichrome Organic Coatings are the result of United Chromium's specialization in surface protection — and years of experience and research. Secondly, United Chromium has the development and production facilities to make *full* use of all protective materials available, such as Melamines, Ureas, Phenolics,

Alkyds, Vinyls, and Celluloses—and to combine these resins with the *right* solvents and plasticizers — to achieve the result desired.

It will pay you to investigate the advantages which Unichrome Organic Coatings can give your products. Write—describing the surfaces to be coated and the exact production and service requirements to be met, and we will gladly advise you.

OTHER U. C. PRODUCTS AND PROCESSES TO SERVE YOU

CHROMIUM PLATING for wear-resisting, oil-retaining and other types of finishes.

☆UNICHROME ALKALINE COPPER for smooth, lustrous copper plating in a non-cyanide bath.

☆ANIZINC salts for anodic treatment of zinc giving greatly increased corrosion-resistance.

☆UNICHROME DIP for increased corrosion resistance of zinc and cadmium, without electric current.

☆Trade Mark Reg. U.S. Pat. Off.

☆UNICHROME STRIP for speedy removal of copper, chromium, zinc, etc.

☆UNICHROME RACK COATINGS

☆UNICHROME STOP-OFF LACQUERS AND COMPOUNDS

☆UCILON corrosion-resistant coatings for protecting surfaces against acids, alkalis, water, gasoline and various corrosive chemicals.

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-AND THE LABOR - MANAGEMENT COMMITTEE UNANIMOUSLY AGREES ON-



Specify VICTORIA TOILET TISSUES

Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.

(Continued from page 390)

to hard water acting on old soap films. The lime dissolved from the material in the stall or floor is not sufficient to cause the formation of scums.

Scum deposits can be prevented by two means: (1) Use only soft water, and (2) do not leave soap films on the surface. The Bureau of Standards report states that "As soap is less soluble in cold water than in hot, it would be more satisfactory to rinse with cold water where hard water must be used for this purpose." Or, in simple language, if your water is hard keep the rinse water cold.—*Hospital Bureau News.*

1 1 1

SURPLUS PROPERTY

CERTAIN misconceptions about surpluses need clarification. It is not necessarily true, as frequently rumored, that surplus property is of inferior quality. With few exceptions government purchases have been made on a strict Federal specification basis and surplus materials being offered for sale are more often than not equal or superior in quality to similar products purchased by the public. Some materials being offered to hospitals as surplus stocks are not government surpluses, but are products which were manufactured for civilian use during the war and which buyers are trying to dispose of quickly because of their inferior quality.

It is true that government surpluses will not always be adaptable to hospital use. On the other hand, many new products will be sold by the government which can be used in hospitals, and as these become available samples should be examined by the purchasing agent and prices negotiated where they have not been established.—*Hospital Bureau News.*



FOR HEAVY MAINTENANCE

Morck SPEED-LINE Brushes not only do every job in fine style, but they last a lot, lot longer than ordinary brushes. Ask your painters—they know, for, Morck Painting Tools are "The Choice of the Master Painter from the Statue of Liberty to the Golden Gate."



MORCK

SPEED-LINE BRUSHES

**DO A BIG JOB
for all Industries**

**3
Generations
as
Leaders**

Men who do the painting, Master Painters... know that Morck SPEED-LINE Brushes enable them to do the big jobs in the most efficient manner... in less time... built with expert "know-how" in brush making, they give real quality service to all industry. Now more than ever before, you have got to put real painting tools in the hands of your painters—give them Morck SPEED-LINE Brushes for lower production costs.

SEND FOR MORCK'S INDUSTRIAL CATALOG

**MORCK BRUSH
MANUFACTURING COMPANY**

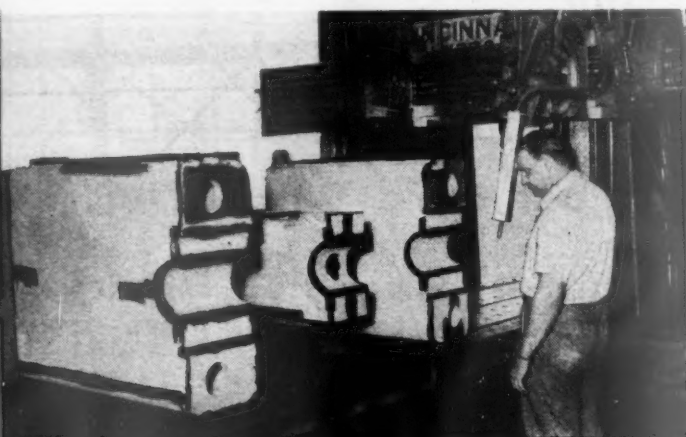
236-8th STREET, SAN FRANCISCO, CALIFORNIA

MODERN PRECISION WELDMENTS FOR "HEAVY STUFF!"



Modern large-scale precision weldments, made possible by advanced techniques developed during the war, are already proving highly advantageous in the heavy machinery industries. Special weldments, designed, fabricated and finished at Warren City, are replacing steel castings in many important applications. In the Bliss Enclosed Press shown here, the crowns, beds and slides are now Warren City weldments, saving weight and increasing strength. High precision is assured by accurate normalizing, stress relieving, machining and testing, with the finest and most modern scientific methods and equipment.

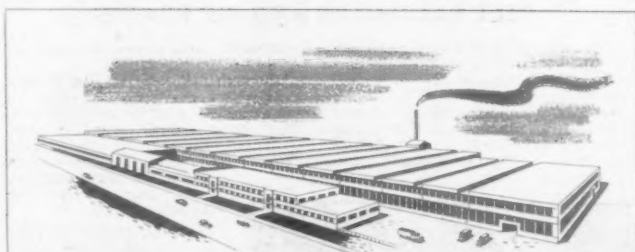
Finishing a precision-tested Bliss press crown, fabricated from welded steel plates at Warren City



WELDMENTS SAVE WEIGHT, ADD STRENGTH, IN FAMOUS BLISS INDUSTRIAL PRESSES

Eliminate Pattern Costs and Casting Defects!

IF YOUR PROBLEM involves the use of heavy steel castings or weldments, be sure you don't overlook the unusual production facilities and know-how



WARREN CITY MANUFACTURING COMPANY ★★★

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WARREN, OHIO

available to you at Warren City Manufacturing Company. Located in the heart of the Cleveland-Pittsburgh industrial area, our huge seven-million-dollar plant contains every modern device for handling, cutting, fabricating, welding, normalizing, machining, assembling and testing heavy steel machinery, parts and equipment. Whether, as in the case of the E. W. Bliss Company, your situation may call for redesigning your present steel castings to enjoy the many advantages of modern precision weldments, or whether your need is simply for extra production capacity without increasing the size of your plant, our engineering staff will be glad to offer you their recommendations without obligation. Write today for our illustrated brochure, including a complete listing of our modern and extensive facilities.

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This eight page booklet should be read by everyone interested in the "near" Infra-red process. It is written so that the laymen understands it. It is colorful and educational. We like it—so will YOU.

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PENETRAY CORPORATION
TOLEDO 5, OHIO

BUILD FROM ROOF DOWN

"Ratio Structure System" Suitable For
Industrial Buildings

HOUSES assembled from the roof down rather than being constructed from the floor up, are described in a final report on the "ratio structure system" developed by research sponsored by the War Production Board's Office of Production Research and Development.

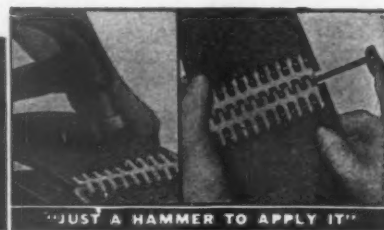
The report should be of particular interest to architects, builders and manufacturers preparing to meet postwar demands for housing, WPB said. It shows how prefabricated one and two-story buildings may be constructed so that they will be capable of withstanding stresses and strains to an extent unusual in structures of lightweight, readily transported materials. In addition, the designs have been worked out with close attention to flexibility in meeting space and floor arrangement needs, ease and space-saving in shipping, and the saving of time and labor in erecting.

A limited number of copies of the document, entitled "Modern Designs for Prefabricated and Demountable Buildings," by Paul Lester Wiener, planner and designer of the New School for Social Research, New York, N. Y., is now available, WPB said, for distribution to agencies of the U. S. government and of the United Nations, and to qualified individuals who apply personally to WPB's Office of Production Research and Development.

"Ratio structure," it is explained, is the name given to the new system because new and more economical

(Continued on page 396)

**BELT LACING
and FASTENERS**
for transmission
and
conveyor belts



ALLIGATOR

Trade Mark Reg. U. S. Pat. Office

STEEL BELT LACING

World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in

steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-60 gives complete details.

FLEXCO HD

BELT FASTENERS AND RIP PLATES

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-

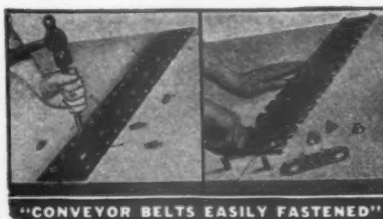
magnetic and abrasion resisting alloys.

By using Flexco HD Rip Plates, damaged conveyor belting can be returned to satisfactory service. The extra length gives a long grip on edges of rip or patch. Flexco Tools and Rip Plate Tool are used. For complete information ask for Bulletin F-100.

Sold by supply houses everywhere

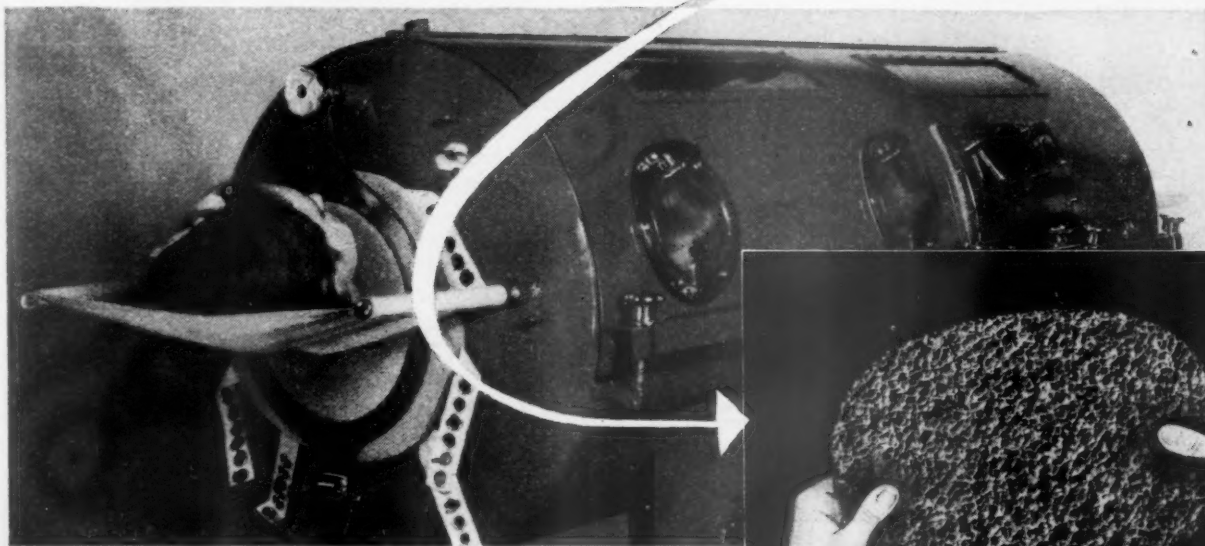
**FLEXIBLE STEEL
LACING CO.**

4697 Lexington Street
Chicago, Ill.

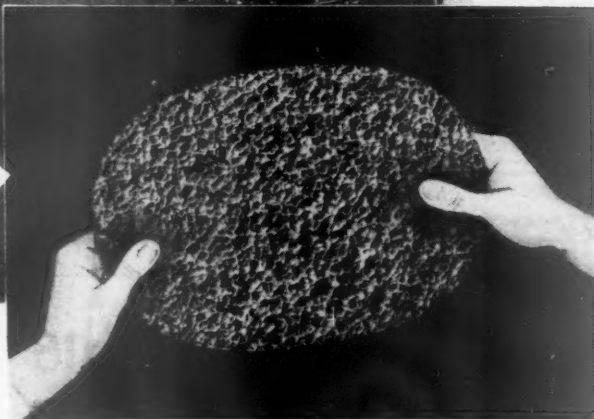


Air Tight Seal...

for a breath of fresh air!



(Photographs, courtesy of Iron Lung Company of America
Allston, Mass.)



IN numbers large enough to people a fair sized city, near-victims of gas, carbon monoxide and drug poisoning, electric shock, drowning and suffocation, as well as thousands stricken with dread polio, owe their lives to the "Iron Lung" — the remarkable respirator that breathes for the person who cannot breathe for himself.

OPERATION of the iron lung belies its cumbersome appearance. It is sure, silent and mobile as a thing alive. Every device to insure dependable, life-giving performance has been worked out to perfection; every refinement reflects meticulous concern for the patient's comfort and safety.

EXAMPLE: The adjustable collar which fits gently about the patient's neck to form a positive,

air pressure seal, is made of elastic, fleecy-soft Sponge Rubber. So are the tough, enduring gaskets which seal port and bedpan openings against all possibility of dangerous pressure leakage!

No doubt your sealing problem is "different". Most of them are. All the more need, then, for versatile cellular rubber in one of its many forms. Cellular rubber can be cut or molded to the shape you need to improve your product by cushioning, sealing, silencing, gasketing, absorbing shock and vibration. Want proof? Just show us your design or model, and ask for samples and prices. Sponge Rubber Products Co., 132 Derby Place, Shelton, Conn. Sale Offices: New York, Chicago, Washington, Detroit.



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SPONGEX*

CELL-TITE*

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means -

1. A choice of oilers designed and produced to the dictates of demand.

2. The largest selection of proved oilers to choose from.

The Gits Line of Oilers offer you a greater selection of styles and capacities than any other source. Each individual model provides design features to satisfy a specific need. All are fabricated to render long dependable service. Illustrations, diagrams and engineering data of this complete line are given in the 172 pages of catalog No. 60—write for your copy.

GITS BROS. MFG. CO.

1865 South Kilbourn Avenue, Chicago 23, Illinois

Exclusive for over 35 years

(Continued from page 394)

ratios between the dimensions of materials used and the actual structural requirements are present in all designs.

The basic designs of the ratio structure system were developed some years ago but practical experimentation in actual building was deemed necessary to determine feasibility of the use of non-critical, light-weight materials, to perfect the packaging and to test endurance and resistance to winds and weather. A 160-family low-rent housing project at Sidney, N. Y. was constructed using the Wiener designs and additional wind and weather tests were made in New York University's engineering laboratory.

In ratio construction, the report explains, the structure is assembled from the roof down. A series of free standing posts on the outside of the building carries the roof load and forms the structural frame. Both the exterior walls and the partitions are of the "curtain" type and may be moved about even after the building is complete. Virtually all the interior space is free and may be divided and used as desired. Replacing the conventional gable roof supported by triangular trusses or rafters is an arch roof with curved, standardized panels put together like bricks to form barrel vaults spanning the entire width of the building.

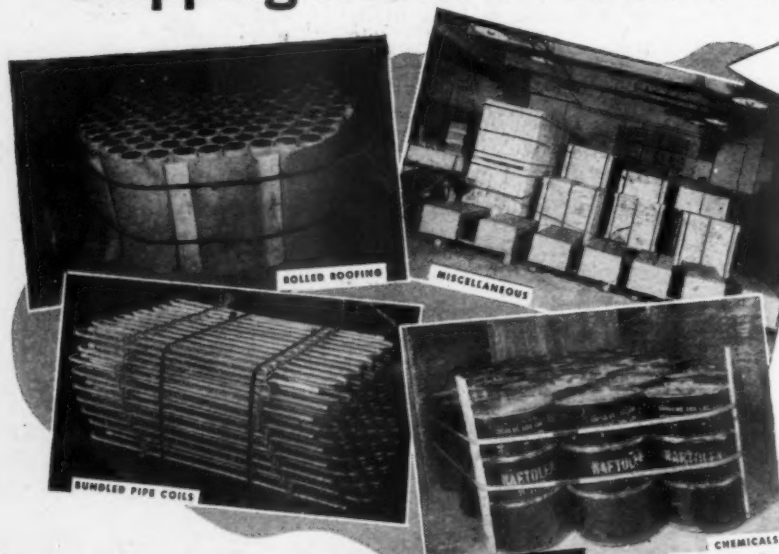
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MOLECULAR MARVEL

A LIQUID that flows like water at 70 degrees below zero, a grease that doesn't melt at 400 above, and rubber that can withstand either extreme—these are a few of the unique members of a whole new chemical

(Continued on page 398)

Now... Operate the Shipping Room at Less Cost



In reconverting, many factories can plan to increase profits by eliminating preventable shipping losses—through use of the Signode Methods of Steel Strapping. Along with greater protection to shipments, you get reduced costs in the shipping room, and, possibly, savings through lower freight rates.

Nearly every type of product can be shipped with greater safety and economy by the use of Signode Steel Strapping.

Take a fresh look at your packing and shipping methods—NOW! Let your nearby Signode engineer help you...He is ready to serve. Call or write.

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Signode Seals, specially lithographed with the shipper's own name or trademark, are good advertising and instantly identify a shipment to aid faster handling.



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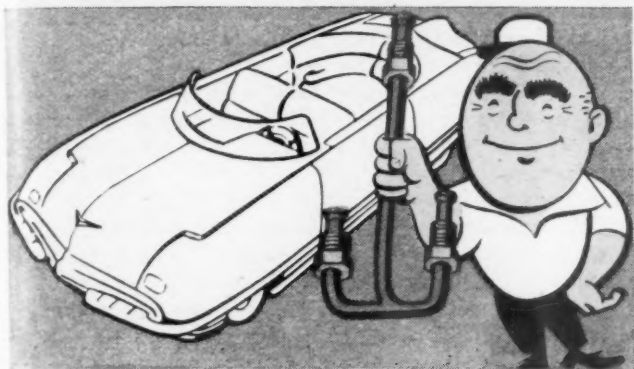
SIGNODE STEEL STRAPPING COMPANY

General Offices: 2602 N. Western Ave., Chicago 47, Illinois

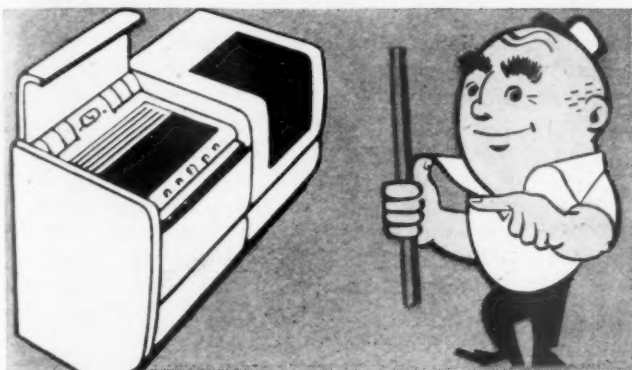
Branches: { 371 Furman St., Brooklyn 2, N. Y.

{ 454 Bryant St., San Francisco 7, Calif.

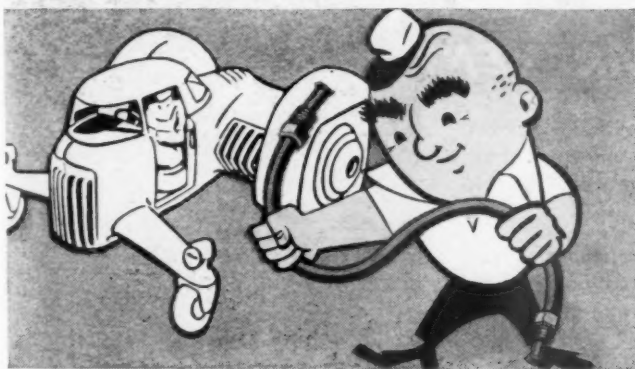
MAJOR INDUSTRIES RELY ON BUNDYWELD



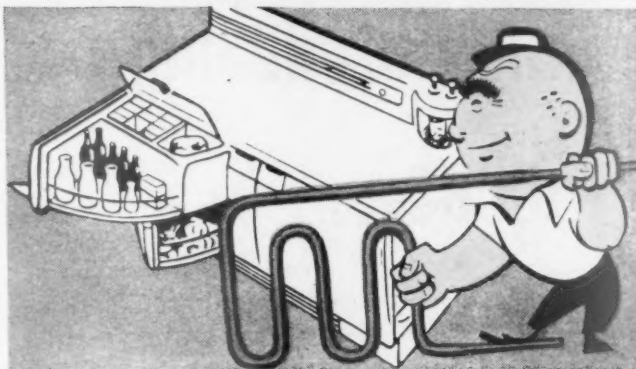
1 THE AUTOMOTIVE INDUSTRY depends on famous Bundyweld for fuel lines as well as for its vital oil and hydraulic brake lines. Bundyweld Tubing is made from a single strip of copper coated steel continuously rolled twice around laterally.



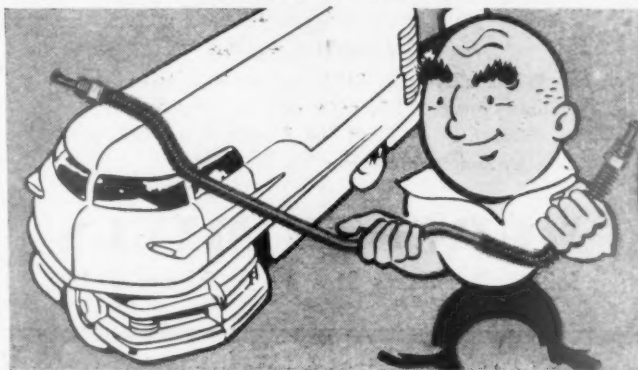
3 THE STOVE INDUSTRY uses Bundyweld in many ways including gas range oven pilot tubes, shown here. Bundyweld's special manufacture assures a solid double walled steel tube, copper brazed throughout 360° of wall contact and copper coated inside and out.



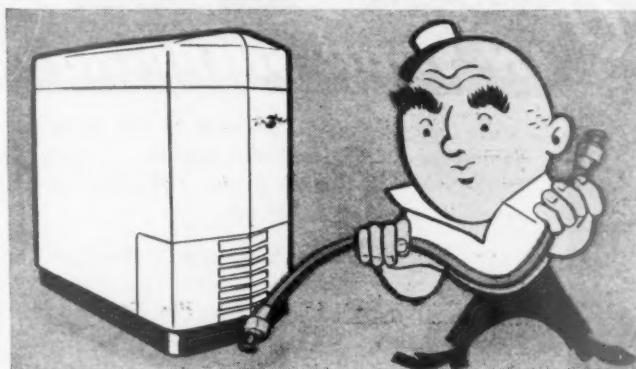
5 THE FARM TRACTOR INDUSTRY turns to Bundyweld for gas, oil and vacuum lines and most recently for hydraulic brake lines. Engineers, technicians, production experts in all fields praise Bundyweld's performance under stress, its great bursting strength and high fatigue resistance.



2 THE REFRIGERATION INDUSTRY turns to Bundyweld for its "life lines" . . . used in a wide variety of applications in both domestic and commercial refrigeration units. Bundyweld's easy fabrication makes possible speedy mass production of the elaborately bent shapes required.



4 TRUCK MANUFACTURERS call for Bundyweld on fuel, vacuum, oil and hydraulic brake lines. The brake line, shown above, is double flared for leak-proof connections. Bundyweld's close tolerances, freedom from scale, walls of uniform thickness and concentricity assure quality control.



6 OIL BURNERS use Bundyweld for fuel connecting lines such as this one. Bundyweld is furnished hard or annealed in standard sizes up to 5/8" O.D. Special sizes cold drawn as desired. Also furnished in Monel and Nickel.

Insist on Bundyweld for your products

For complete information on how Bundyweld can be used to advantage in your field, contact our nearest representative or write Bundy Tubing Company, Detroit 13. Depend on Bundyweld for an outstanding performance. Its great versatility makes possible speed and economy on the production line.

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Rutan & Co.
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Mr. Purchasing Agent...

COTTON TEXTILES may be a small or large item on your production line

or in maintenance work...

but get your quotations first from **BURCOTT MILLS** — who are large enough in capacity to supply you with the textiles you need for prompt shipment from Chicago stocks — at lowest prices — and small enough to give your urgent as well as regular needs personal attention.

- While all textiles have not yet been released for civilian consumption, write or wire for those that are available OR — Send for Brochure on Industrial Textiles and current price list.

BURCOTT MILLS

305 N. Desplaines St.

Chicago 6, Ill.

(Continued from page 396)

family that promises to rank with synthetic rubber, high-octane gasoline, and other materials as one of the outstanding discoveries of the past 50 years.

Called silicones, the new family is derived from common sand by modification with chemicals from brine, coal, and petroleum. By manipulating the molecules of these substances, chemists are able to create an almost infinite variety of materials, any one of which may be "custom-built" to fit a specific need or application in any number of fields.

The main branches of the silicone family are resins, liquids, and rubber, with compounds and greases as prominent offshoots. They have already been used to strengthen electrical insulation, to protect warplane engines at high altitudes, to waterproof glass and porcelain insulators in radio and radar equipment, and to seal out water from high-power marine searchlights. They may be used as the base in heat-resistant paints for exhaust stacks, hot-air ducts and the like; as a polish for optical or general-purpose glass; as a "foam-stopper" in lubricating oils; or even as a moistureproof coating for clothing and shoes. Their potential applications, in fact, are practically limitless.

Silicones were discovered in the search for a "missing link" in the chain of electrical insulation. The development of glass-fiber tape had provided one link, and all that was needed was a varnish that would fill up the tiny air gaps in the tape and at the same time resist the heat under which electrical machines operate.

Chemists of the Corning Glass Works tackled the problem, using as a guide the basic research carried out since the turn of the century by the well-known English scientist, Dr. F. S. Kipping of the University

(Continued on page 400)

for SPEED IN YOUR SHIPPING DEPARTMENT

Use SAFETEX TAPE because of the exclusive herringbone grooved gumming which distributes moisture evenly making the glue both "tacky" for fast sticking yet flowable for permanent sealing. No excessive rubbing necessary.

Also because the glue surface is "cracked" thereby eliminating curl and making tape pliable — clothlike. It can be handled with greater speed and efficiency over edges, around corners, and on uneven surfaces.

For Speed and Efficiency use SAFETEX.

Write for name of nearest paper merchant distributor.

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SAVES TIME AND TAPE

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**SAFETEX
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STICKS
FASTER,
HOLDS
TIGHTER.**

AO Welders' Safety Clothing

FOR COMFORT,
SAFETY,
EXTRA LONG WEAR



AO OVERALLS NO. 207-CL. Made from high quality chrome-tanned cowhide, this garment is shaped to fit comfortably and give unusually long service. Trousers legs are 24" wide at the bottom, making them easy to put on and take off over heavy shoes. Ample roominess in the crotch enables

American  Optical
COMPANY
SOUTHBRIDGE, MASSACHUSETTS

the operator to stoop over or handle floor-level jobs comfortably. An 11" wire pocket on left leg; one hip pocket with flap; chrome leather shoulder straps with buckles for rapid adjustment; large one-piece bib for full chest protection. Send for complete information.

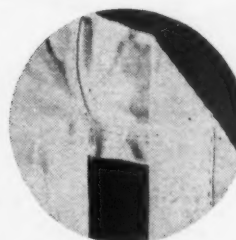
Materials. To minimize the possibility of shriveling and shrinkage, AO Welders' Clothing is made of the highest grade of chrome-tanned cowhide, weighing approximately 4 ounces per square foot. All leather received at AO Factory has been subjected to laboratory analysis for excess shrinkage, abrasive resistance, proper chrome-tanning, and correct grease content.

In areas of extra tension and strain, reinforcing rivets provide added strength and longer garment life. The fire-resisting duck used for backing weighs approximately 12 ounces per square yard.

Fasteners. AO Welders' Safety Clothing is equipped with the finest fasteners obtainable—large, durable snap fasteners. They are easy to open and close, stand up under hard service, and are generously used to insure tight closures.



Sleeves of ordinary welders' clothing have seams like this.



Sleeves of AO Welders' Coats and Cape Sleeves have flat seams like this.

Seams. Welders' leathers normally wear out or give way at the seams. AO Welders' Safety Clothes have very few seams, and these seams, wherever possible, are located well away from the line of fire. All seams are double cotton stitched and reinforced with metal stitching. To prevent irritation, the sleeves of AO Coats and Cape Sleeves have flat seams. This construction also provides strong, sturdy resistance to wear at the elbow.



Crotch. Closely spaced rivets reinforce AO Pants and Overalls from the inseam of the leg to the fly, strengthening the first area in which all trousers usually give way or wear out. To prevent sparks from rolling through, the fly has ample overlap and plenty of snaps placed closely together.



● Whether it's a vital machine part, a part for a game or toy, or a complete product in its own right . . . if it's made of wire, we solicit your inquiry. We can produce it in any quantity and any finish you desire.

Wire forms and light metal stampings are our business. Years of experience and fast, automatic machines mean precision—speed—and delivery as promised. Moreover, we're equipped to give you any permitted finish you desire.

What's your problem? Send us a sample, blueprint or drawing. No obligation, of course.

JESCHKE
WIRE AND SPECIALTY CO.
 700 POSTON DRIVE
 CRAWFORDSVILLE, INDIANA



IF IT'S MADE OF WIRE WE CAN MAKE IT

(Continued from page 398)

of Nottingham. Together with their colleagues at the Mellon Institute of Scientific Research, they found out how to build large molecular structures with silicon and oxygen atoms, linked chain-fashion.

Out of this research came, not one, but a whole line of new useful products, requiring entirely new plants for their production. The first and still the only full-scale plant is that of the newly established Dow Corning Corporation at Midland, Michigan, which began regular production in 1944.

To find out how silicones behaved as insulation for electrical machines, Westinghouse engineers collaborated with Dow Corning scientists in testing the material under greatly accelerated conditions. Motors were run for hours at temperatures many degrees better than normal; then shut off and put under humidification tents where moisture was allowed to collect on windings and metal. The machines were then tested electrically and the cycle repeated.

The tests, still going on, have produced remarkable results. At this writing one motor has operated at a temperature of 572 degrees F., for a time engineers estimate to be the equivalent of 782 years at normal temperatures; another for the equivalent of 507 years. Because silicone insulation allows motors to run "hotter," the horsepower output of some motors has been increased considerably, in some cases 25 percent.

Another member of this versatile family—silicone compound—is helping keep high-altitude bombers and fighters in the air longer. Early in the war, engine failures were being caused by breakdowns in the ignition systems of planes as the result of electrical flashovers in the air spaces around the high-voltage ignition cables where

(Continued on page 402)

Chicago Rivet
 AUTOMATIC SETTING
 SLASHES UNIT COSTS!

76 your product involves a fastening operation—wood to wood, metal to metal, fabric to fabric, composition to composition, or any combination of these—you can slash unit costs by increasing production volume with high speed Chicago Rivet Automatic Setters and Chicago Rivet tubular or split rivets. Four rivets are automatically fed, inserted and upset at one release of the foot pedal by the quadruple model Chicago Rivet Setter. Single, double and triple setters are also available.

Quick change hoppers, available as extra equipment, enable some models to switch quickly from one size and style rivet to another. Nearly all models clinch grommets, eyelets, staples and Dzus fasteners and insert drive screws—all automatically.

FREE FASTENING CLINIC

If your product is small, send us an unfastened sample. If it's large, send a sub-assembly. We will gladly analyze your fastening problem, recommend the type rivet and Chicago Rivet Automatic Setter needed and estimate production rates that can be set up on the job.

A Few Applications

- AIRPLANE PARTS
- AUTOMOBILE PARTS
- BEAUTY PARLOR EQUIPMENT
- BED SPRINGS
- BELTS & BICYCLES
- CAMERAS
- CAN OPENERS
- CANVAS GOODS
- CARD TABLES
- CASH REGISTER
- CLOCKS
- COFFEE POTS
- DOOR LOCKS
- ELECTRICAL PARTS
- FAN BLADES
- FARM IMPLEMENTS
- FILING EQUIPMENT
- FURNITURE
- HOLDING CHAIRS
- IRONING BOARDS
- JEWELRY
- INDUSTRIAL BROOMS
- INSTRUMENTS
- IRONING BOARDS
- KNIVES
- LAMPS
- LAWN MOWERS
- LEATHER GOODS
- LOOSELEAF BOOKS
- LUGGAGE
- MILK BOTTLE CRATES
- MILLIES
- POITS, PAIRS & PAIRS
- PULLEYS
- RADIO PARTS
- REFRIGERATORS
- RUBBER GOODS
- SEWING MACHINES
- SHOES & SLATES
- STEP LADDERS
- STOVES
- TELEPHONES
- TOASTERS & TOYS
- TYPEWRITERS
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- WASHING MACHINES

Chicago Rivet CHICAGO RIVET & MACHINE CO.
 4607 W. Jackson Blvd., Chicago, Ill.

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Final Victory has been achieved — all honor to those of our Armed Forces who helped defeat the world's aggressor nations.

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*Keep On
Buying
War Bonds*

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Here Shown Disassembled

STROM BALLS

Serve the Armed Forces

Here, in the Bendix-Weiss Constant Velocity Universal Joint, Strom Balls do their part in making military vehicles, from Jeeps to 14-ton Armored Cars, the efficient fighting equipment that they are. This is only one spot in our great war production effort where the high degree of perfection of Strom Balls serves industry, enabling it to provide the finest bearing equipment towards its great contribution to total victory. Strom Steel Ball Company, 1850 South 54th Avenue, Cicero 50, Ill.

Largest Independent and Exclusive Metal Ball Manufacturer

Strom BALLS  **Serve Industry**

(Continued from page 400)

they entered the spark plug. Given the problem, Dow Corning scientists came up with a colorless silicone compound that completely fills the air spaces around the cables, has excellent resistance to flashover, and does not harden, crack or flow at any temperature from 40 degrees below zero to 400 above.

The story of silicones will take years to write, mainly because there are as many chapters as there are combinations of molecules. Already firmly established in the world of materials, but with their full potentialities as yet unexplored, the future of silicones is as fascinating as the chemistry that gave them birth.—*Westinghouse Newsfront*.

1 1 1

SEE HUGE DOMESTIC PRODUCTION OF PIGSKIN

FOR the first time, large supplies of domestic pigskin—possibly as much as 2,000,000,000 square feet annually—may be produced, as a result of research by the Engineering College staff of Cornell University, under sponsorship of the War Production Board, in designing equipment and developing feasible methods for the flaying (skinning) of hog carcasses, WPB's Office of Production Research and Development announced recently.

Working with the Portland Abattoir at Portland, Maine—an establishment owned by John Kern of that city—the Cornell investigators, after trying many hog-skinning devices, have developed a power-operated flaying knife, OPRD said, which is an adaptation of

(Continued on page 404)



EXPERIENCE

THE "KEYSTONE" OF PECK SERVICE

Our having "hit the ball" times without number over the years, adds up to one thing: *experience*. With this experience has gone the keen pleasure of developing and sticking to high quality standards. The results have been invitations to help win two world wars, plus the privilege, in between, of having a part in the success of thousands of peace-time products.

Although the war is over, we, like numerous others, are extremely busy - but not too busy to help out old friends and get acquainted with new ones, as far as may be possible. Therefore, if you need wire springs or screw machine products, contact us. Often there is a rift in the cloud, and if your order is in, it can go right into production.

Peck THE PECK SPRING CO., 40 WELLS ST., PLAINVILLE, CONN.
SPRINGS & SCREW MACHINE PRODUCTS



Paint clean-cut designs at spray gun speed with **SPRA-MASK**

Don't let clumsy methods slow down your production line at the spraying booths—use **MYSTIK SPRA-MASK**. With **MYSTIK SPRA-MASK** you can spray on decorative patterns, borders, trademarks, lettering, etc., and get clean, sharp edges every time! Even difficult multi-colored designs are made simple and fast with this new development in masking materials.

MYSTIK Self-Stik SPRA-MASK clings tightly to any surface, applies easily, yet comes off readily and leaves no residue. With **MYSTIK SPRA-MASK** die-cut to your specifications for pattern or lettering, all edges adhere firmly to the surface, allowing no color to creep under the mask. It makes corners and curves as easy to spray as flat surfaces. **MYSTIK SPRA-MASK** speeds production, cuts costs and gives perfect results every time. It is ideal, too, for sandblasting designs on glass, metal, and for many other masking jobs.

Mystik Spra-Mask is but one of the many **MYSTIK Self-Stik** products doing essential jobs for industry—among them the famous **MYSTIK CLOTH TAPE** for sealing, protecting, packaging, shipping, maintenance and repair, and many production uses. You will find that **MYSTIK Self-Stik** products are the answer to problems in every department in your plant, too. Ask your distributor for further details, or write to Mystik Adhesive Products, 2634 N. Kildare Ave., Chicago 39.

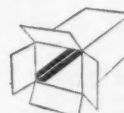
Here's How **MYSTIK PRODUCTS** can serve you



PRODUCTION—**MYSTIK SPRA-MASK** for spray painting and sandblasting designs, lettering, trademarks, etc., and other masking jobs. **MYSTIK TAPE** for protection of fine surfaces, bundling assemblies, marking and identifying, holding fittings, etc. **MYSTIK MASK** for fine-surface protection during fabrication.



PACKAGING—**MYSTIK TAPE** for protection of fine surfaces, sharp edges; for protective wrappings, bundling assemblies, etc.



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MAINTENANCE AND REPAIR—**MYSTIK TAPE** for repairs to wiring, pipes, fabrics, etc. **MYSTIK DRI-PIPE** for "sweating" pipes.



STORAGE—**MYSTIK TAPE** for protection of tools, sharpened edges, machined surfaces, etc. **MYSTIK MASK** for protection of high-polish surfaces against scratches, abrasion, etc.

MYSTIK
Self-Stik
ADHESIVE PRODUCTS

large capacity



STAINLESS STEEL BEAKERS

FOR hundreds of laboratory applications, Stainless Steel Beakers, available in six sizes from 1200 ml. to 8000 ml., offer a full measure of convenience and a high level of performance, notwithstanding their comparatively low cost.

Built especially for those requirements demanding long use under severe service conditions, Harshaw Stainless Steel Beakers are made of 18-8 solid metal, rust-proof, and cannot chip, scale or peel. They are tough, strong and highly resistant to denting, scratching, abrasions and binding.

Size	A	B	C	D	E	F
Capacity, ml.	1200	2000	3300	4000	5800	8000
Diameter, mm.	125	140	175	180	200	225
Height, mm.	145	175	180	190	225	250
Each	\$2.50	\$3.25	\$4.00	\$4.75	\$6.25	\$7.25

10% Discount allowed when purchased in lots of 12—one size or assorted.

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DIVISION OF THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO

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(Continued from page 402)

the sheep clipper or wool shearer. Inserted between the skin and the carcass after the skin of the hog is slit with a sharp knife, the oscillating dull blade moving across the stationary blade, effectively produces a skin free of fat and without accidental cuts.

Coincidentally, OPRD said, an apparatus has been worked out to hold the hog carcass in the best position for flaying, and to rotate it as the flaying progresses.

While the new cutting tool works well and details of its manufacture will be freely furnished to any interested commercial mechanical tool maker, OPRD said, it is possible that a tool similar in shape to the slaughterer's knife, but consisting of two dull blades that reciprocate axially like those of a pair of scissors, might prove still more practical.

The project was originated in February 1944 because of the critical shortage of leather in the United States, OPRD said. In pre-war years most of the pigskin used in this country for shoe soles and uppers, luggage, gloves and other goods, came from Europe. With the outbreak of the war, Europe ceased to send any considerable supply of such cured hides. Very little skinning of hogs has ever been done in the United States, because removing the hide from the carcass by hand, using a sharp skinning knife, is so difficult, expensive and time-consuming. The skin cannot be quickly removed clean from a hog carcass by such hand operations as is possible with sheep and cattle. If pulled, it brings with it large pieces of edible fat.

Although the tool for flaying hog carcasses will cut the hide cleanly from the legs and head of the animal, Mr. Kern and the Cornell project staff believe it is not economical to remove the hide from these parts. Cut-

(Continued on page 406)

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Tantalum-Tungsten
CARBIDE
TOOLS • BLANKS • DIES

World's Finest Carbide. VascoLOY-Ramet Standard Carbide Tools perform 90% of all Carbide tool operations. Write for Carbide Tool and Blank Price List showing additional Standards.

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"Hi-EFF" custom molded products, plastic and rubber, are the result of more than 23 years' experience in developing and producing molded parts—climaxed by the exacting requirements of wartime production. Here at Taylor, we cover every phase of compression or transfer molding of thermosetting plastics and molding of mechanical rubber products, all to your rigid specifications—engineering, product design, die making, mold construction, molding, finishing and inspection. And here is the production capacity to turn out molded parts by the hundreds or millions. So don't take a chance with unknown plastics in the products you are designing. Insure their acceptance with "Hi-EFF" quality. Your inquiry will receive our prompt and expert attention. No obligation, of course.

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Small as a 1/4" grommet, like this:

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(Continued from page 404)

ting the skin only from the main body of the hog would give about 15 square feet of high quality leather per animal, OPRD said. Since 150,000,000 hogs are slaughtered annually by the large packing houses, the amount of leather that could be realized would be well over 2,000,000,000 square feet per year.

6,000 TONS OF TIN SALVAGED

6000 From Tin Cans

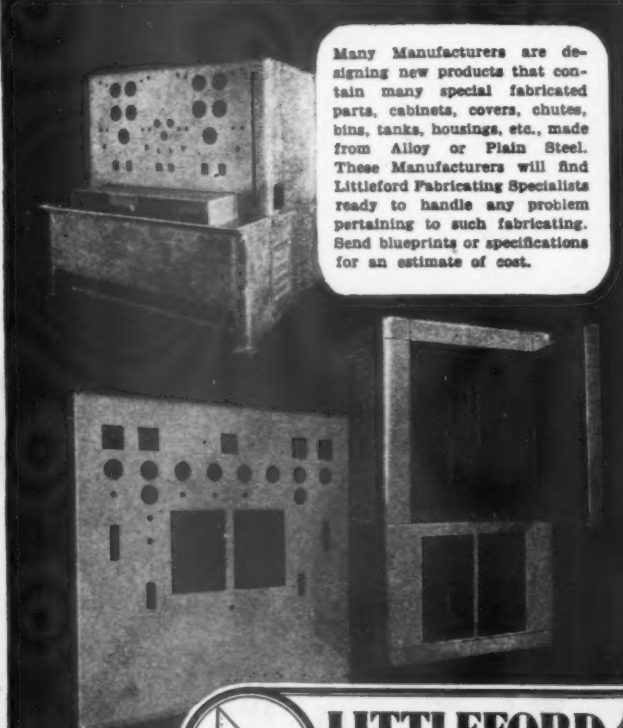
SALVAGE of used tin cans by a patriotic American public in the past three years added about 6,000 tons of tin to the nation's critically needed stockpile, the Conservation and Salvage Division of the War Production Board reports.

The importance of this contribution is indicated by the fact that our total tin stockpile on July 1, 1945 was only 95,572 tons, and of this only about 20,000 tons were in pure tin comparable to that recovered from tin cans. The rest of the stockpile was in the form of ores and concentrates that require smelting.

Under the WPB tin can salvage program, 567.024 gross tons of used tin cans were delivered to detinning plants between September 1942 and June 1945. Only the tin coating, constituting slightly more than one per cent of the weight of used tin cans, is recovered as pure tin, WPB explained.

Along with the public tin can salvage campaign, WPB enlisted the cooperation of industry in accelerating the collection of industrial tinplate scrap left over from stampings in container manufacture and other processes. Approximately 10,000 tons of tin were recovered by detinning industrial scrap.

SHEET STEEL PRODUCTS



Many Manufacturers are designing new products that contain many special fabricated parts, cabinets, covers, chutes, bins, tanks, housings, etc., made from Alloy or Plain Steel. These Manufacturers will find Littleford Fabricating Specialists ready to handle any problem pertaining to such fabricating. Send blueprints or specifications for an estimate of cost.

LITTLEFORD



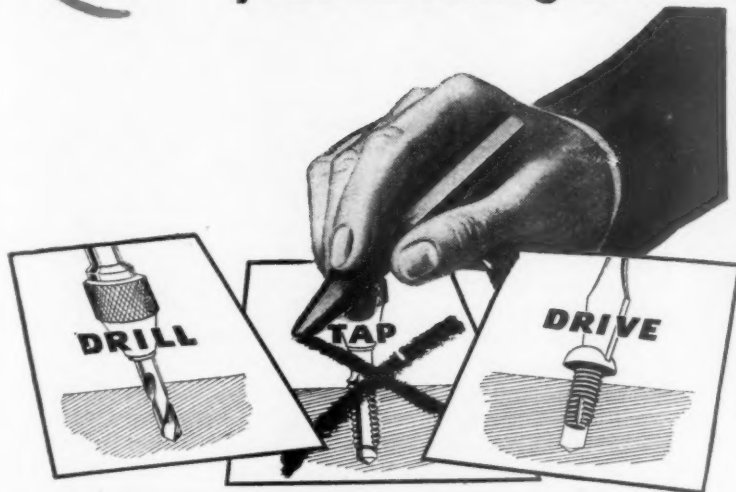
LITTLEFORD BROS., INC.

446 E. Pearl St., Cincinnati 2, Ohio

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*Short Cut to
Better Assemblies*

**...and save up to 50¢ on
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A FASTENING OPERATION BECOMES SIMPLY "DRILL-DRIVE", instead of drill-tap-drive, when you change over to P-K Self-tapping Screws. You eliminate tapping for machine screws... end fumbling with bolts and nuts... avoid troublesome inserts in plastics, and do away with riveting in hard-to-reach places.

BESIDES SAVING YOU FROM 30% to 50% in fastening time and labor, the P-K "shortcut" method turns out a stronger assembly, because the extruded threads that are formed as P-K Screws are driven hold securely, and resist the severest vibration.

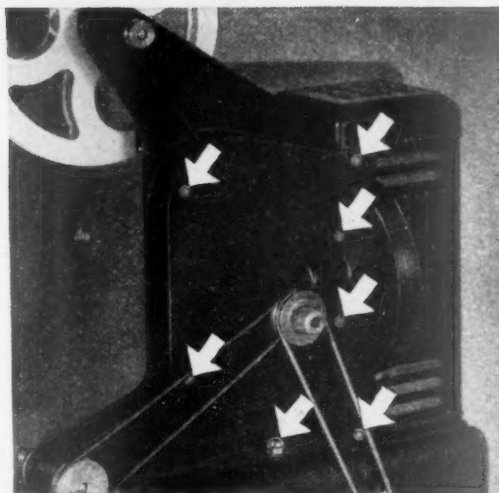
YOU CAN CHANGE to P-K Self-tapping Screws over night. No special equipment or special training of help is needed, although the "short cut" method often permits the use of power, in place of hand drivers.

CALL IN A P-K ASSEMBLY ENGINEER. He'll help you find all opportunities for saving time and money, and improving your product, with P-K Screws. Or, mail assembly details direct for recommendations. Parker-Kalon Corporation, 208 Varick Street, New York 14, N. Y.

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For Every Metal and Plastic Assembly



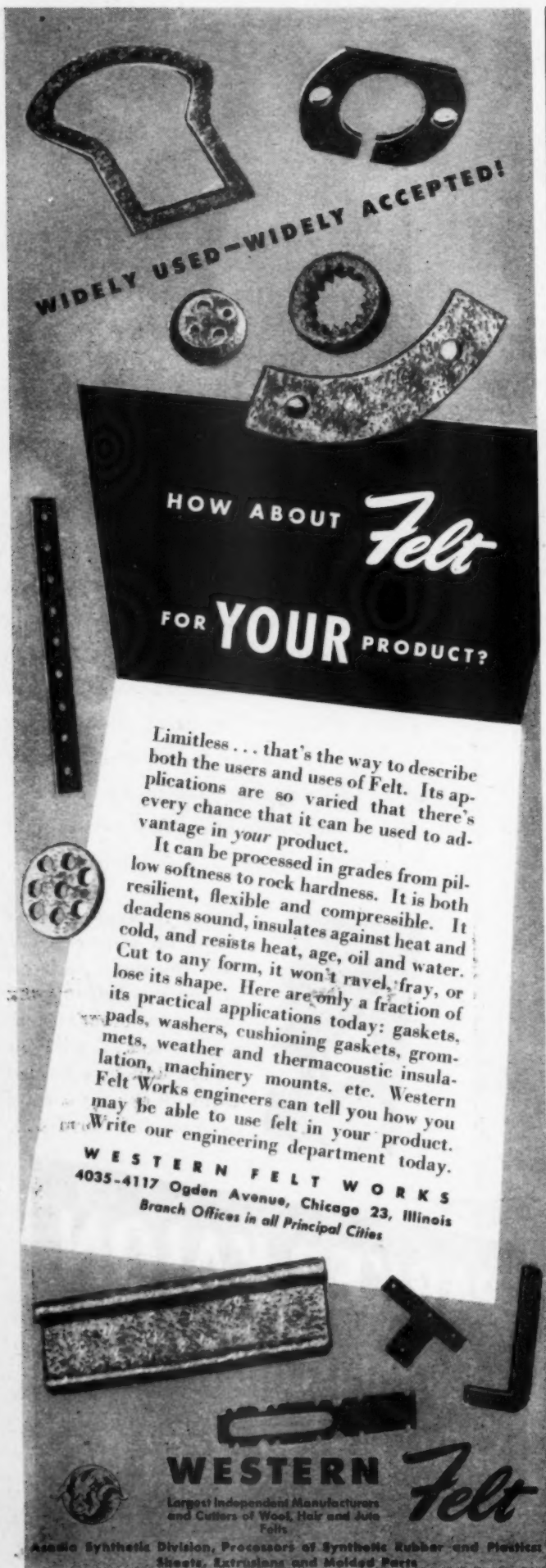
**P-K "SHORT CUT" METHOD ADDS
STRENGTH, PERMITS LOWER PRICE
FOR PROJECTOR**

In the assembly of this home movie projector, Universal Camera Corp. found that the use of P-K Self-tapping Screws not only provided fastenings of improved security, but saved enough assembly work hours to permit a lower selling price. Eight sub-assemblies are made of light metal parts fastened to die castings with the use of 23 P-K Hex Head Self-tapping Cap Screws and Type "U" Hardened Metallic Drive Screws.



"HOW TO USE" BOOKLET
- FREE on request - will give you quick facts on all the P-K Self-tapping Screws and other Fastening Devices... tell you where and how to use them. Write for a copy... ask for Form 480.

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Quality-Controlled
SELF-TAPPING SCREWS



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Asac Synthetic Division, Processors of Synthetic Rubber and Plastics
Sheets, Extrusions and Molded Parts

SYNTHETIC TIRE DEVELOPMENT

MAJOR J. J. ROBSON

Chief, Rubber Development Division
Office, Chief of Ordnance-Detroit

GROWTH of synthetic rubber from an infant to an industrial giant almost overnight has been one of the great production records of history. Less well-publicized, but of equal importance, is the tremendous technical effort that has been made by scientists and engineers in learning to use this new material.

The Ordnance Department of the U. S. Army, largest user of rubber, has taken a leading part in the development. Ordnance early recognized that the Army faced a complete breakdown in its ability to move if synthetic rubber did not stand up in combat. To insure highest quality products, several far-sighted steps were taken.

The first of these was taken immediately after Pearl Harbor, when a production order for 293,500 synthetic test tires was placed with the rubber companies. This was the first large volume order ever effected for synthetic rubber. Test of these first tires showed that synthetic rubber had several serious adverse characteristics in the cutting and cracking of treads and susceptibility to heat and bruise type failures.

To overcome these deficiencies, Ordnance established extensive test programs devoted to the improvement of synthetic rubber. These were located in the rocky hill country of Texas: in the hot California desert; in average conditions in Maryland, and in the severe cold of Manitoba and the Alaska Highway.

An index to these tests is the Ordnance Tire Test Fleet at San Antonio, Texas, devoted exclusively to synthetic development, where over 12,000 experimental synthetic tires were tested and vehicles ran more than 23,000,000 miles.

Great Moment in Science?



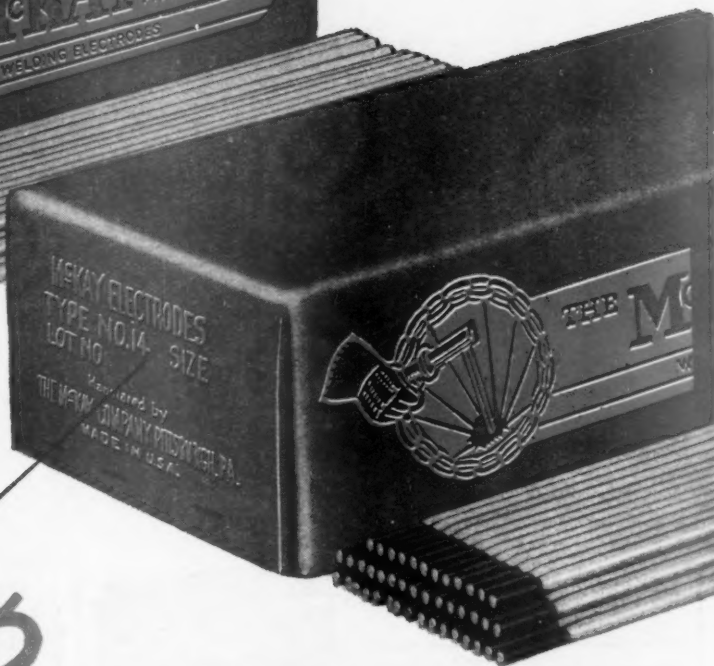
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MCKAY No. 11

An A.W.S. 6011 Type Electrode for A.C. (or D.C. Reverse) welding. This is a deep penetration type shielded-arc electrode that produces high quality welds from all positions and is especially adapted for ship building, pipe line work, structural steel fabrication and similar welding. Characteristics similar to McKay No. 15 but also for A.C. as well as D.C. Reverse operation. No. 11 is available in 4 sizes—1/8", 5/32", 3/16" and 1/4".

MCKAY No. 14

An A.W.S. 6013 Type Electrode for A.C. or D.C. straight polarity welding. A highly versatile electrode combining the physical properties of McKay No. 15, the operating characteristics of No. 17 and the bead appearance, speed and slag removal of No. 16. Sizes 1/8", 5/32", 3/16", 7/32", 1/4", 5/16". A distinctly new type, because of its combination of characteristics. Ask your McKay representative, or write, for full technical details.

2 NEW MCKAY MILD STEEL ELECTRODES

To an already unusually complete line McKay has added two new mild steel, shielded-arc welding electrodes with characteristics suited to modern welding needs. With these additions, the McKay *researched* line now offers a wider range of standard mild steel electrodes than ever before!

From this variety it is possible to select a "stock" rod that will fill most any specific need, without delay or premium cost for specials.

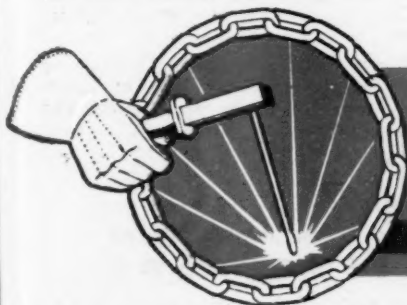
OTHER MCKAY MILD STEEL ELECTRODES

McKay Grade	A.W.S. No.
No. 21.....	E4510
No. 3.....	E4520
No. 15.....	E6010
No. 17.....	E6012
No. 116.....	E6012
No. 16.....	E6020
No. 18.....	E6030
No. 16-H.....	None
No. 117.....	None
No. 19.....	None
No. 10.....	None
No. 715.....	E7010
No. 711.....	E7011
No. 713.....	None
No. 716.....	E7020

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4 Wheel Steer

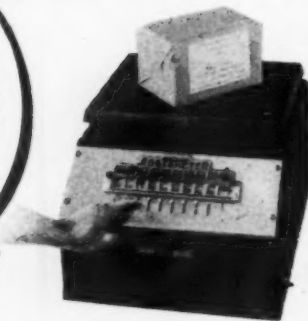
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(Continued from page 408)

As a result of these exhaustive tests, by far the most extensive in rubber history, Ordnance has been successful in converting U. S. Army truck and armored car tires to 87% synthetic, 13% crude. The use of a certain amount of crude is still required in the larger sizes, which are frequently heavily overloaded.

In addition, a new type of synthetic rubber known as butyl has been adopted exclusively for Army inner tubes. This provides excellent service and is considered superior in that it holds air longer than crude rubber and therefore need not be inflated so frequently.

Ordnance tire experts sum up their experience with synthetic rubber in this way:

"Synthetic rubber has done an excellent job in the small and medium size tires. In the larger sizes, cracking of treads is still a problem. Synthetic rubber is not yet as good as crude for tires, but it has withstood the acid test of combat; and above all, it has moved successfully our Armies in the greatest motor transport operations ever known."

Another Ordnance development of interest is the "Combat" tire, a special type employed for armored cars and certain gun carriages which are particularly subject to enemy fire. The combat tire utilizes a unique construction which enables it to operate for at least forty miles after it has been completely deflated by combat action or hazard of any kind.

Combat tires have proved of great value in Europe by enabling men to keep vehicles going, accomplish their missions, and safely return after tires had been deflated by small arms fire or shell fragments. Battle experience has proved that combat tires have been a decisive factor in preventing casualties and in saving vehicles and the lives of men.



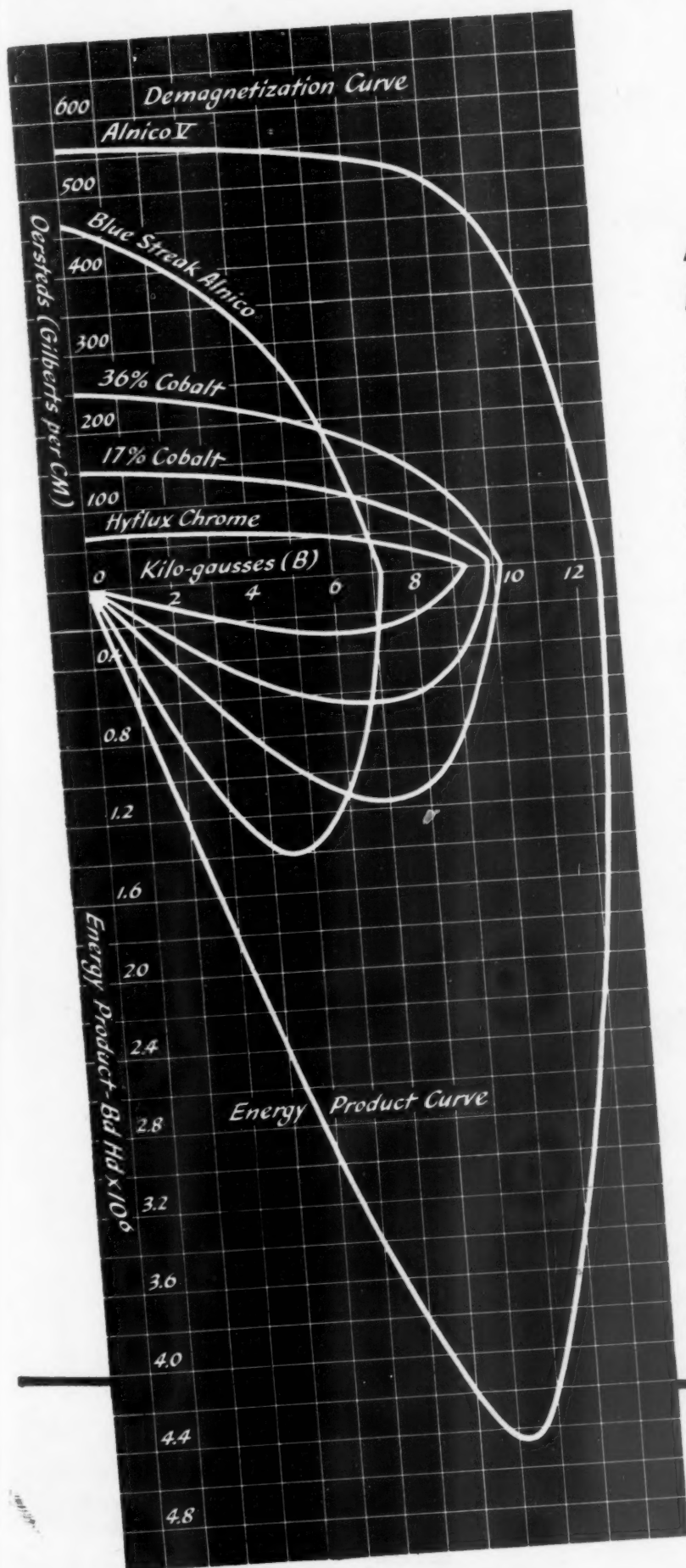
The night was dark but the air was blue when Gramp stepped on the fly paper the wind had blown from the window sill. "Damme," said the old boy, "it sticks tighter than the wife's relatives!"

But Tanglefoot fly paper was just a stripling in sticking compared to present day Tanglefoot Kraft Sealing Tape. It never lets go! A super tape for those who realize the value of maximum product protection. Insist on

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GUMMED KRAFT
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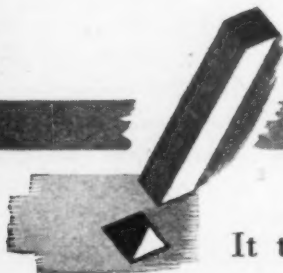
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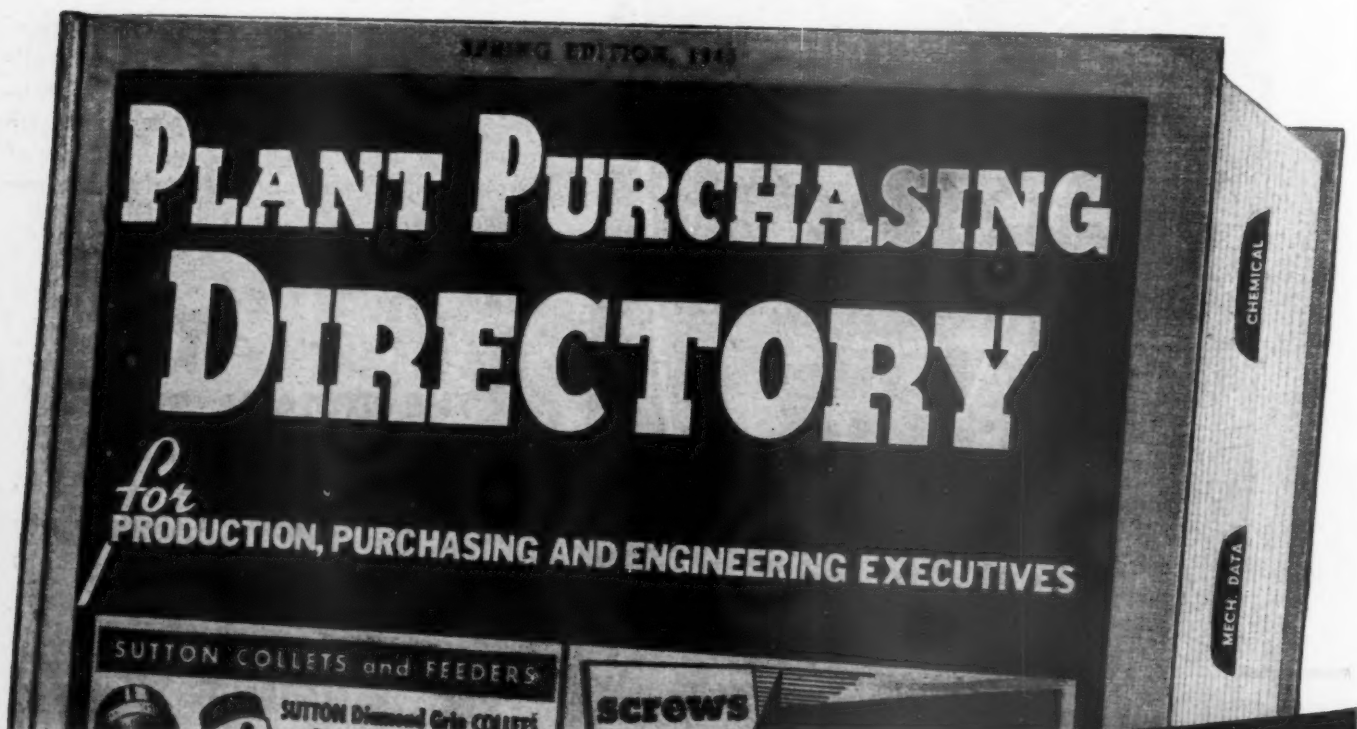
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There is far more here than meets the eye



★ *In a casual inspection, the many Taylor Forge Nozzles like this seen in big power and process plants simply appear to be sturdy, workmanlike outlets for boilers and pressure vessels.*

But there is far more to these nozzles than meets the eye, for into their design goes a fund of technical information that is based on more than forty years of research and experience in dealing with the stresses in vessels and piping under pressure.

IN WeldELLS, too, there is more than meets the eye, for in WeldELLS and our other regular stock welding fittings is reflected this same accumulated "know-how"—this broad experience in designing and manufacturing for full strength.

An excellent example of this is the distribution of extra metal in WeldELLS where stress is greatest. Another, is the tangents which remove the weld from the zone of maximum stress. In fact, you will find evidence of adherence to highest engineering standards and complete mastery of manufacturing methods in all the features listed opposite—features that are combined only in WeldELLS.

Check this list and we believe you will agree that:

WeldELLS have everything

TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago P.O. Box 485
New York Office: 50 Church Street • Philadelphia Office: Broad Street Station Bldg.

WeldELLS alone combine these features:

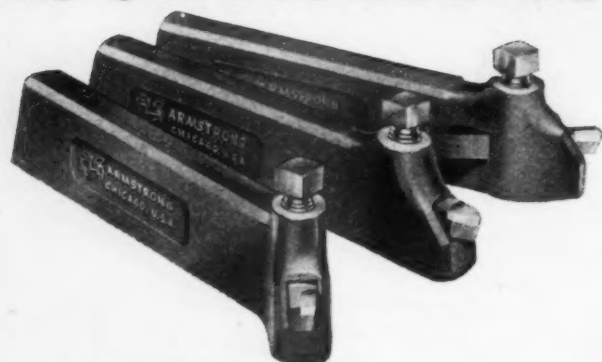
- **Seamless**—greater strength and uniformity.
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- **Precision quarter-marked ends**—simplify layout and help insure accuracy.
- **Selective reinforcement**—provides uniform strength.
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- **Wall thickness never less than specification minimum**—assures full strength and long life.
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Carbide

TOOL HOLDERS



Each Takes Carbide Tipped Cutters of Many Shapes

ARMSTRONG Carbide TOOL HOLDERS have been specially designed and engineered for use with Carbide-tipped tool bits, and embody the special characteristics essential for the efficient use of carbide-tipped cutters, namely; great strength, extreme rigidity and close-up support for the cutting edge, and a "flat" cutting angle. They are drop forged from a special analysis steel. They differ from the universally used ARMSTRONG TURNING TOOL HOLDERS for ordinary high speed steel cutters, in the following details: (1st) they are heavier, size for size — are wider and less shaped at the "neck". (2nd) They are extended far forward under the cutter to give close-up support to the cutting edge. (3rd) They hold tipped tool bits at a "flat" angle parallel to the shank (instead of the $14\frac{1}{2}^\circ$ angle standard for high speed steel cutters). This reduces the end clearance requirements (necessary back rake) so that cutters need to be ground back but slightly, under the cutting point. (4th) They are available in various sizes with optional broachings — either for "Square Shank" or "Heavy Duty Shank", ARMIDE or other carbide-tipped tool bits.

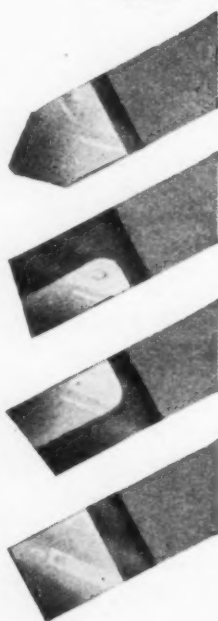
Each ARMSTRONG Carbide TOOL HOLDER is a permanent, multi-purpose tool. Each takes Armide or other carbide-tipped tool bits ground to innumerable different cutter shapes. Hence, each does the work of a complete set of solid carbide-tipped tools. Coming in many sizes, all taking interchangeably standard carbide-tipped tool bits, which are now stocked in several cutter forms by all leading industrial supply houses, they provide a complete "System of Carbide Tools" which are readily obtainable at nominal cost . . . a system of tools which makes practical the use of carbide tools for every day work in the average tool room, maintenance department or machine shop.

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ARMSTRONG BROS. TOOL CO.

"The Tool Holder People" 303 N. Francisco Ave., Chicago, U. S. A.
Eastern Warehouse & Sales: 199 Lafayette St., New York

ARMIDE Carbide - Tipped Cutters come in two grades and 4 standard shapes with square or "Heavy Duty" Shanks.



HUGE PAPER SALVAGE

APPROXIMATELY 30,000,000 tons of waste paper were salvaged in the United States between January, 1941 and September, 1945, the Conservation and Salvage Division of the War Production Board reports. This amount is more than 90 times the total of the nation's waste paper inventory on July 1, 1945 of 330,000 tons, WPB pointed out.

Waste paper collection during 1941 was conducted by private industry, without emphasis on wide public participation until October, 1941 when the stockpile dropped to 290,000 tons. The first waste paper salvage campaign was instituted in the Autumn of 1941 and the total collection for that year was 5,921,000 tons, or an average of slightly less than 500,000 tons a month.

The Conservation and Salvage Division of WPB was established in January, 1942 and promptly launched a paper salvage drive in the interest of the war effort.

Twenty one thousand local salvage committees functioned during the war for the collection of waste paper (as well as used tin cans, fats and rags) and largely through their invaluable efforts the salvaging of waste paper kept pace with consumption, which also was approximately 30,000,000 tons between January, 1941 and the end of the war.

While WPB sponsorship of the waste paper salvage campaign ceased officially on September 28 when the Conservation and Salvage Division was dissolved, there is a continuing need for waste paper in the reconversion task as well as in supplying needs of our occupation forces overseas and of liberated areas.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Purchasing, published monthly at Orange, Conn. for September 1945.
State of New York) ss.
County of New York)

Before me, a Notary Public in and for the State and county aforesaid, personally appeared A. M. Morse, Jr., who, having been duly sworn according to law, deposes and says that he is the Business Manager of the magazine "Purchasing" and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537 Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Harvey Conover, 205 East 42nd Street, New York City; Editor, Stuart Heinritz, 205 East 42nd Street, New York City; Business Manager, A. M. Morse, Jr., 205 E. 42nd Street, New York City.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given).

Conover Mast Company, 205 East 42nd Street, New York City 17; Dorothy J. Conover, 1251 Flagler Drive, Mamaroneck, N. Y.; Harvey Conover, 1251 Flagler Drive, Mamaroneck, N. Y.; Ruth S. Mast, 333 No. Michigan Ave., Chicago, Ill.; B. P. Mast, 333 No. Michigan Ave., Chicago, Ill.; B. P. Mast, Jr., 333 Michigan Ave., Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and his affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is . . . (This information is required from daily publications only.)

A. M. MORSE, JR.

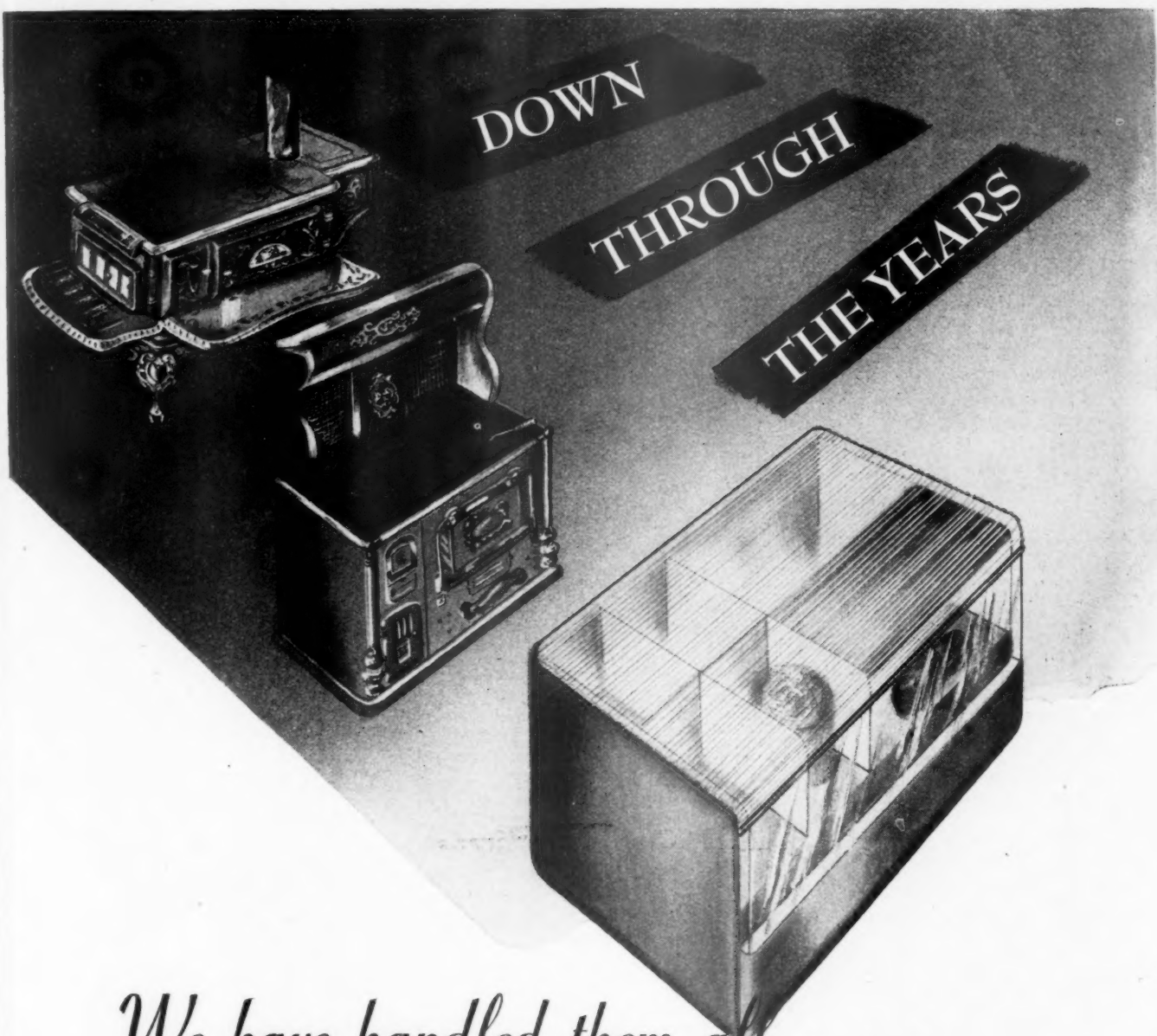
(Signature of business manager)

Sworn to and subscribed before me this 25th day of September, 1945.

GRACE I. BEDDOE,

Notary Public.

(My commission expires March 30, 1947)



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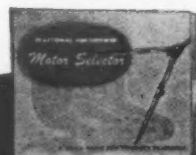
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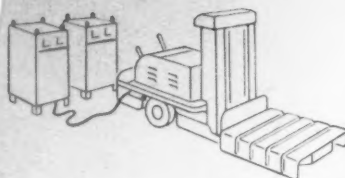
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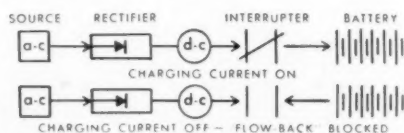
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